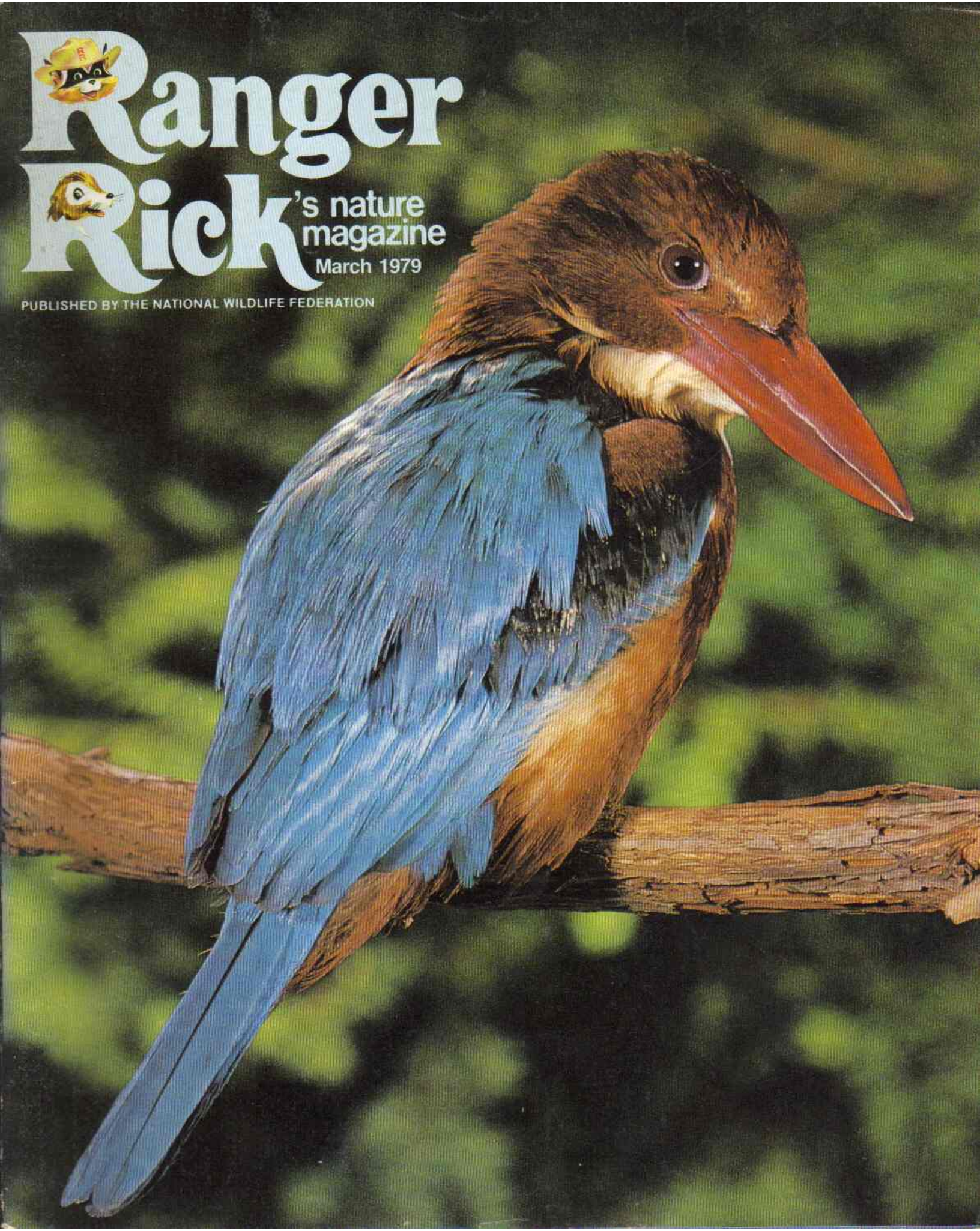
Ranger Rick's nature magazine

March 1979

PUBLISHED BY THE NATIONAL WILDLIFE FEDERATION



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Ranger Rick's Nature Magazine is published monthly by the National Wildlife Federation, a non-profit corporation, 8925 Leesburg Pike, Vienna, VA 22180. It is a publication available only to members of Ranger Rick's Nature Club and not sold on a subscription basis. Membership annual dues $8.00. Foreign $10.00. Second class postage paid at Vienna, VA and at additional mailing offices.

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Printed by Fawcett Printing Corp., 1900 Chapman Avenue, Rockville, MD 20852.

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Cover credits: White-breasted Kingfisher by Constance P. Warner; Painted Reed Frog by Karl H. Switak; Luna Moth by Ray R. Kriner from Grant Heilman

The feathery feelers of a male luna moth can smell a female miles away. Turn the page and find out how.

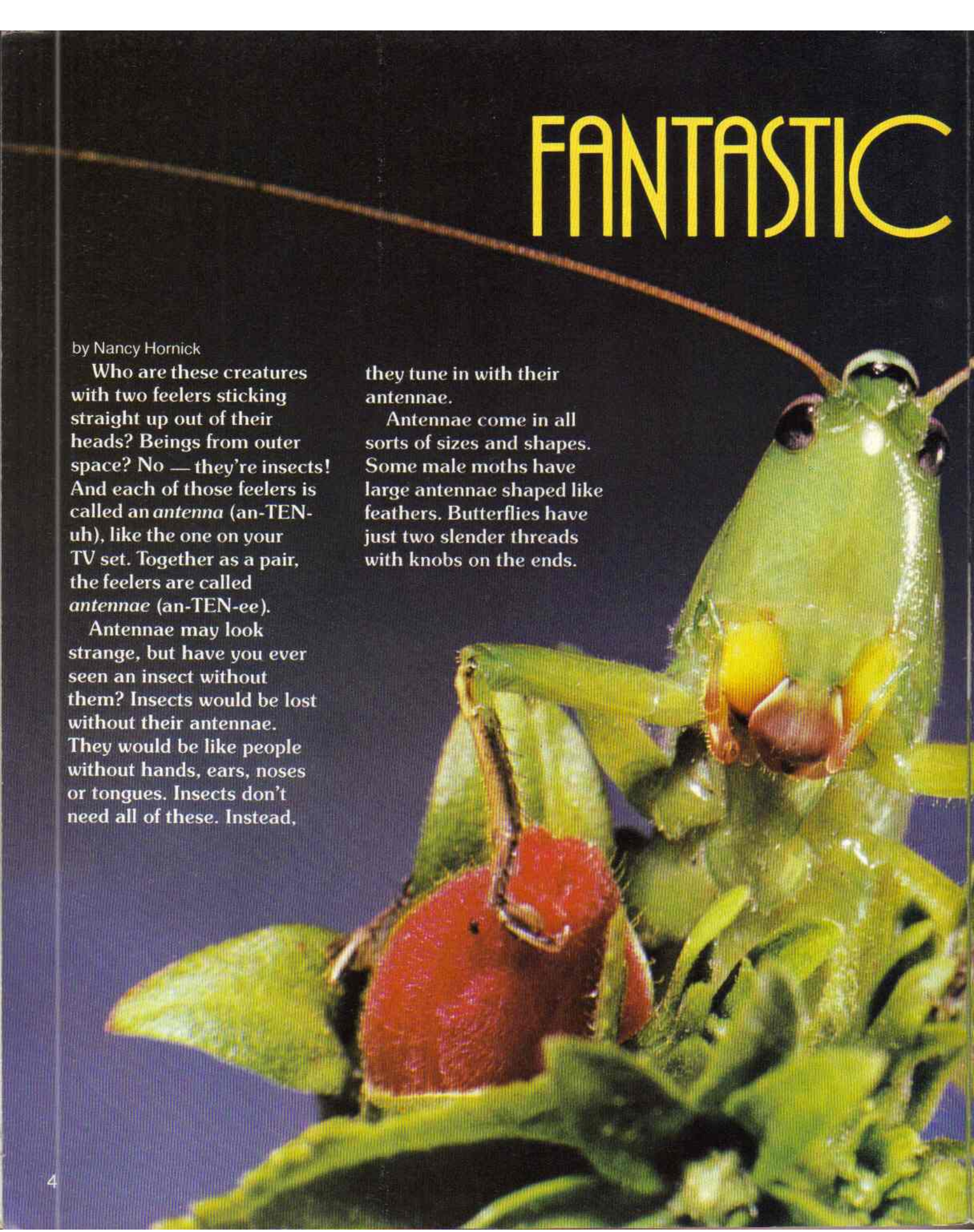
FANTASTIC

by Nancy Hornick

Who are these creatures with two feelers sticking straight up out of their heads? Beings from outer space? No — they're insects! And each of those feelers is called an *antenna* (an-TEN-uh), like the one on your TV set. Together as a pair, the feelers are called *antennae* (an-TEN-ee).

Antennae may look strange, but have you ever seen an insect without them? Insects would be lost without their antennae. They would be like people without hands, ears, noses or tongues. Insects don't need all of these. Instead, they tune in with their antennae.

Antennae come in all sorts of sizes and shapes. Some male moths have large antennae shaped like feathers. Butterflies have just two slender threads with knobs on the ends.



FEELERS

Other insects, such as long-horned beetles and grasshoppers, have antennae you just can't miss. They are often longer than their entire bodies!

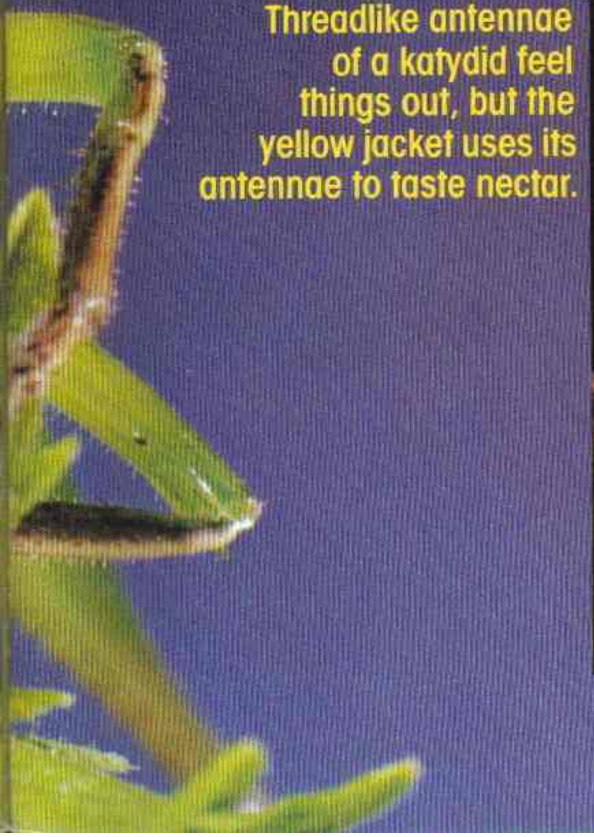
Not only do antennae have different shapes, they also do different things. The honeybee uses its antennae as a "nose" to hunt down nectar. The male silk moth tunes its antennae to just one odor: the odor of a female silk moth. But the female doesn't have to be close by. The male silk moth can smell his mate from as far as three miles (5 km) away!

Most insects have two types of sense organs covering their antennae: tiny hairs or bristles called *setae* (SEE-tee), and bumpy knobs and tiny holes.

Setae are used by ants, bees and many other insects for tasting. Other setae on the antennae are for touching. Antennae are always in motion, twisting and turning. When they bump into things, the setae bend, and the insect feels what is there.

Caterpillars, flies and some beetles have setae covering their entire bodies.

Please turn the page



Threadlike antennae of a katydid feel things out, but the yellow jacket uses its antennae to taste nectar.

A longhorn beetle "tunes in" with antennae longer than its body.

They are like the tiny hairs on your arms. But they are so delicate! Even the slightest breath of air will move them. These insects may not see you, but they can feel you moving. So hold your breath the next time you try catching that fly!

The bumpy knobs and holes covering an insect's antennae are for smelling. Each one is busy picking up odors from the environment. They are very tiny. Bees have up to 30,000 of these odor pits on their antennae. The June beetle has 80,000!

Some ants, bees and termites can "read" as a language the odors they pick up on their antennae. They live in colonies of hundreds or thousands. So they need a way to keep things organized. These insects use odors to tell the members of their own colony from those of other insect colonies. They also have *alarm odors* to alert the members of their colony when there is danger.

What else can insects do with their amazing language of odors? Some ants will make *odor trails* all the way back to their colonies when they find food. The other ants in the colony smell the trail with their antennae. Then they follow the trail, touching the ground with their antennae.

Some insects do more hearing with their antennae than smelling or tasting. Male mosquitos and some male midges have antennae that are specially made for hearing. Each one has a large swelling at the base. The setae grow out thick and bushy along their antennae. These setae vibrate with the sound of a female mosquito's wingbeats. Remember that humming in your ear on a summer's evening? This sound leads the male mosquito to his mate.

Still other insects use their antennae to control their flight. The insects are like pilots, and their antennae are like the instruments of a plane or ship. Movement of air on the setae of flying insects tells them when to speed up or slow down and when to steer. Some water beetles use their antennae to detect ripples in the water made by other objects. The ripples warn the water beetles not to crash into anything . . . *look out!*

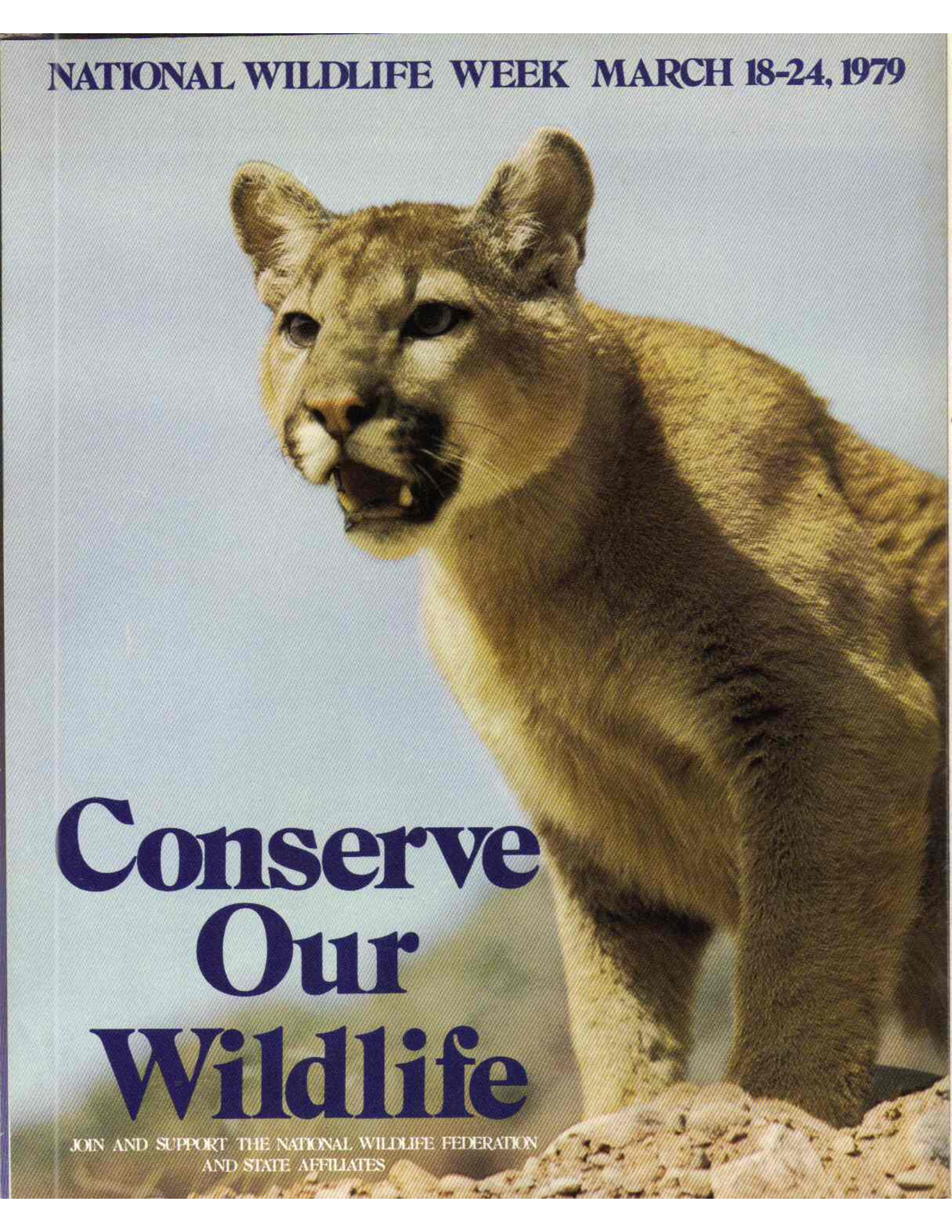
Scientists are still discovering ways that insects use their antennae. They think that some feelers may even sense temperature. Bedbugs may use their antennae to hunt for a warm body.

But whether they are stroking or poking, finding food or a mate, or just listening for danger, antennae are always at work. Without them, insects would be lost! *The End*

During courtship the male micro moth may feel the female with his super-long antennae.

Photos by James H. Robinson (4, 5, 6); Stephen Dalton/Photo Researchers

NATIONAL WILDLIFE WEEK MARCH 18-24, 1979



Conserve Our Wildlife

JOIN AND SUPPORT THE NATIONAL WILDLIFE FEDERATION AND STATE AFFILIATES

Nature Club News

Conserve Our Wildlife

Rangers, hurry! You can still get a Wildlife Week Kit that contains a poster, stick-ons and other goodies. Send a postcard to Dept. C-79, National Wildlife Federation, 1412 16th Street NW, Washington, DC 20036. *Teachers:* Order a Wildlife Week Educational Kit for your class from Dept. T-79 at the above address.

Did you know that the cougar, or mountain lion — shown on the National Wildlife Week poster — is one of the best animal athletes? That's right. The big cat can jump as far as 40 to 60 feet (12 to 18 m). It also can leap over 15 feet (4.5 m) into the air or onto a branch. That's higher and farther than any other cat in the world can jump.

Because a few cougars eat livestock, some people don't like them. These people think that all cougars should be killed. Other people want to save them.

The right answer is conservation. When we deal wisely with wildlife, we are practicing conservation. That means that sometimes we protect animals completely; at other times we try to control their numbers. Often we do best when we let wildlife alone.

Conservation takes learning and doing — learning how and why to help wildlife and then doing something about it. That's why this year's theme for National Wildlife Week, "Conserve Our Wildlife," is such an important one.

Start A Nature Club

One of the best ways to learn about conserving wildlife is to begin a chapter of Ranger Rick's Nature Club. You can start a nature club in your neighborhood or in your class at school. And there's no better time to start than during National Wildlife Week.

You'll need an adult leader, so ask a parent, teacher or grownup friend to help. Make sure that you or another member of your club belongs to the national Ranger Rick's Nature Club and receives *Ranger Rick's Nature Magazine*. Ask your leader to send for a registration form. When the form is filled out and sent in, the club will get its own certificate, together with many ideas for activities. Write: Club Coordinator, Ranger Rick's Nature Club, 1412 16th Street NW, Washington, DC 20036.

Your First Meeting

Hold your first meeting during National Wildlife Week, March 18 to 24, 1979. Collect ideas for club activities. To help your club learn more about wildlife, read about animals and take field trips. Then your nature club can help improve wildlife habitat. You can make nesting boxes, plant plants to supply food and shelter or make brush and rock piles for animal hiding places. These are just a few ways to help.

You'll soon discover that nature club members "conserve our wildlife" when they are learning and working together. You'll be celebrating Wildlife Week every week of the year!

The End

Photo by John S. Flannery

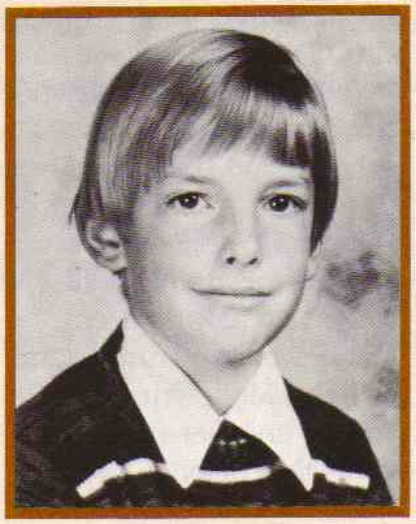
Ranger Rick's ANNUAL CONTEST WINNERS

My Annual Contest for 1978 is over. But for the winners the fun has just begun. From the thousands of entries we received, over 100 Rangers won prizes!

All who entered get a big *Congratulations!* from all of us in Deep Green Wood. We know that you really care about nature. And you're really doing something about it! Keep up the good work. Look for the new contest in September.

I also want to thank our contest judges. They were Charlotte Farrand, Ed McCrea, Sara Murphey and Craig Tufts. They picked some wonderful winners. *R.R.*

Melinda Johnson



Scott Westgard

SAY HELLO TO OUR TOP PRIZE WINNERS.

Melinda Johnson, 11, of Shalimar, Florida, is first prize winner.

"I like animals and have two dogs, a gray tabby, a goldfish and a horse," she told us.

"Since I live in a mild climate, I can be outdoors a lot. I like to walk in the woods and along the beaches. I also enjoy riding my horse, playing my clarinet, swimming and doing crafts.

"In the sixth grade I participated in a school-sponsored three-day environmental study group at the Blackwater State Forest Environmental Center. This year I am doing a science fair project on bees and how they fit into nature's plan.

"I can't wait to go to the National Wildlife Federation's Summit in Colorado this summer. My parents are going too! I am very excited!"

Scott Westgard, 9, second prize winner, from Buffalo Grove, Illinois, is going to Wildlife Camp in North Carolina this summer. He loves to camp and has been to Grand Teton, Yosemite and Sequoia National Parks on camping trips.

"My main interests are science and art. I like astronomy and fossil hunting. I also enjoy sports — soccer and swimming in the summer, ice skating and tobogganing in the winter."

David Milligan

THIRD PRIZE WINNER

David Milligan, 12, lives far north in Yellowknife, Northwest Territories, Canada. He reported that the camera he won is just what he needed for photographing wildlife near his home.

WINNING IDEAS

Many contestants had good ideas. Here are some from our winners.

Part 1

"The sun shining through dewdrops on grass makes me feel like the richest queen among more blue, red, green and yellow gems than I could imagine."

"I think porpoises are beautiful because just watching them play gives you the feeling of joy in living."

Part 2

"Nature teaches me not to be selfish or greedy, to take what I need, not more. Nature won't stop until the end of time. That thought gives me a feeling of security."

"Nature is most important to me because without nature there wouldn't be anything left in the world. Nature is so important, and still you see people harming it every day. That's sad."

Part 3

"I could protect the woods by donating to a Save the Trees Foundation in my area. Then it could buy more saplings to plant where large trees have been cut down."

"Stop erosion by strip-crop planting. Enforce laws preventing factories from dumping chemicals into streams and rivers. Teach people to prevent harmful forest fires and enforce game laws."

Part 4

"On my camping trip I would set an example by staying on the trail. Walking off the trail can destroy plants and small wildlife. I would be silent so others can enjoy the sounds of the forest.

"At the campsite I would set a good example by not cutting down trees to clear a place for the campsite. I would not dump any garbage into the stream. I would carry the garbage out of the forest and leave the campsite better than I found it."

"I would do what any Ranger would do; that is, respect nature and act like one of its children, and respect it as you would respect an elder."

FOURTH PRIZE WINNERS

ILLINOIS
Shelly Thorne, 11, Elburn
MARYLAND
Brian P. Brooks, 11, Bel Air
MASSACHUSETTS
Ari Jacobson, 8, Waban.
NEW YORK
Shari E. Blank, 9, Canton
Patrick J. Kelly, 11, Dansville

FIFTH PRIZE WINNERS

ARIZONA
Stephanie L. Dunbar, 9, Tucson
FLORIDA
Chelsea Jones, 8, Gainesville
MICHIGAN
Martin A. Hall, 7, Richville
Jennifer Wright, 11, Royal Oak
NEW JERSEY
Craig Nadeau, 9, North Plainfield
Tony Sabo, 12, Chatsworth
NEW YORK
Christopher Drew, 6, Rochester
David Remis, 8, Poughkeepsie
OHIO
Lori Feichter, 12, Massillon
Todd Nielsen Myers, 6, St. Clairsville

SIXTH PRIZE WINNERS

CALIFORNIA
Adria Jamal Arteseros, 9, San Francisco
Julie Demes, 12, Carmichael
Dana Green, 10, Concord
Kristy Lai, 7, Gilroy

Please turn the page

FOURTH PRIZE WINNERS:

Shari E. Blank

Ari Jacobson

Brian P. Brooks

Patrick J. Kelly

Shelly Thorne

Jennifer McComb, 10, Los Altos
Ann Moses, 11, Woodside
David Reinhart, 12, Ventura
Brian Root, 9, Redondo Beach
Karen Sime, 9, Sacramento
Jeffrey Thornton, 10, Madera
Jamilah Vittor, 10, Gardena

COLORADO
Keely Forsberg, 11, Littleton
Jay Newcomer, 7, Denver

FLORIDA
Michelle Hiebert, 8, Gainesville
Timothy Honhart, 8, Sarasota
Marla Koepp, 12, Homestead
Michelle Marlan, 12, Tampa
Patches McLaurin, 11, Apalachicola

GEORGIA
Cindy McDougal, 12, Marietta

ILLINOIS
Patty Streed, 12, Savanna

INDIANA
Bill Bassett, 11, Auburn
Christopher David Ort, 8, French Lick

IOWA
Chad Johnson, 12, Council Bluffs

MAINE
Katrina Anderson, 10, Farmingdale
Anne Thompson, 8, Cumberland

MARYLAND
Donald Hopkins, 12, Gaithersburg
Melanie Jensen, 11, Towson
Samantha Magrath, 7, Silver Spring
Bruce McCanna, 11, Mt. Rainier
Andrew Megginson, 12, Columbia
Brent Sweger, 8, Laurel
Tony Walters, 10, Frederick

MASSACHUSETTS
Donna Compagnone, 10, Mendon
Stephanie Hayner, 11, Newburyport
Eva Keville, 11, Manchester
Laura Mamayek, 7, Avon
Karen Niessen, 12, Carlisle
Kari Thompson, 9, Brewster
Judy-Beth C. Tyler, 7, Boston

MICHIGAN
Tessa Jones, 5, Potterville
Christine Sebenik, 9, Ann Arbor
Susan Warner, 10, Midland

MINNESOTA
Anne Marie Kovacic, 11, Burnsville
Kelly Tubman, 10, Golden Valley

MISSOURI
Chris S. Hansen, 12, Rogersville
Douglas E. Johanson, 10, Branson

NEVADA
Kim Grundy, 11, Reno

NEW JERSEY
Cindy Dugan, 12, Blairstown
Ken Linger, 8, Bridgewater
Richard Nicoletti, 10, Somerset
Roberta Sammataro, 8, Howell Township
Nancy Triol, 12, Somerville

NEW MEXICO
Lara Wirtz, 8, Pecos

NEW YORK
Robert Daisy, 8, St. James
Dawn Dina, 11, Laurel
Caroline Moore, 11, Sparrowbush
Bridget O'Neill, 10, Getzville
Deborah Raushi, 10, Scotia
Curtis Sanger, Jr., 11, Canandaigua
David A. Thompson, 6, Brooklyn
Anne Toker, 11, New York

OHIO
Jeff D. Bowman, 9, Athens
Audrey M. Goodman, 12, Beachwood
Jeff Keenan, 11, Doylestown
Anna King, 8, Findlay
Michelle Pearsall, 11, Parma Hts.

OREGON
Andy Neville, 7, Corvallis
Jodi Talbott, 7, Adel

PENNSYLVANIA
Mike Bainhauer, 11, Allentown
Richard Baringer, 11, Quakertown
Lisa Dale, 12, Mercer
Jeremy R. LaHurd, 6, Greenville
Jennifer Schoerke, 10, Philadelphia
Tracy Pierson Titus, 7, New Ringgold
Howard Whiteman, Jr., 12, West Mifflin

TENNESSEE
Sally Anne Kelley, 9, Dayton

TEXAS
Maxine Grace Crosby, 10, Arlington
Eugene D. Hahn, 9, Houston
Lisa Heino, 11, Nacogdoches
Chrissie Richardson, 9, Buna
Derek M. Smith, 9, Lewisville

UTAH
Joseph R. Pitkin, 8, Logan
Thomas Smith, 8, Newton

VIRGINIA
Stephen Gallagher, 11, Virginia Beach
Bill W. Rodman, 10, Winchester
Michelle I. Schue, 10, Richmond
Lara A. Wiersberg, 10, Sterling

WASHINGTON
Renee Henken, 11, Ferndale
Polly Pauw, 11, Federal Way

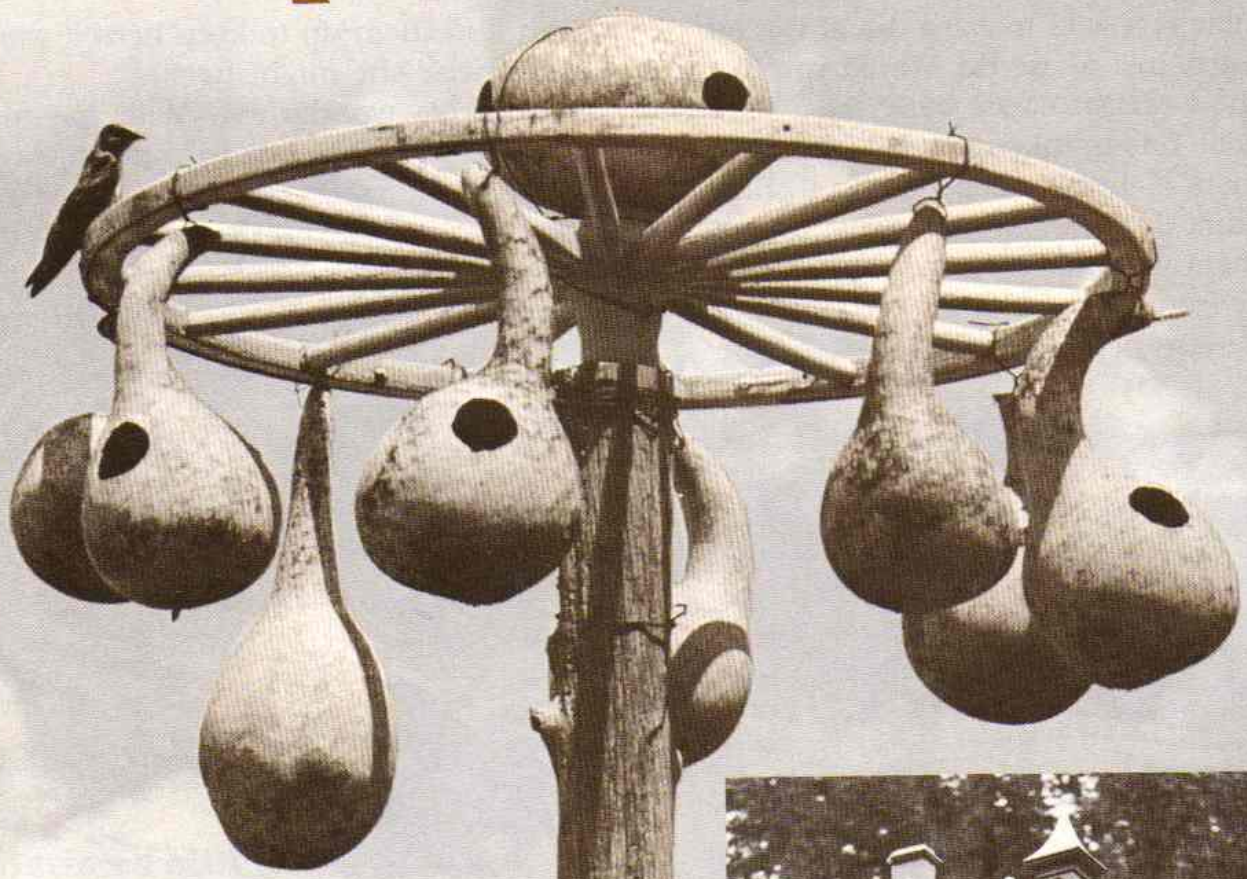
WEST VIRGINIA
David Kitchen, 9, Fayetteville

WISCONSIN
Joe LeBouton, 7, Elcho
Ann Marie Luker, 12, Oshkosh
Helen Weber, 9, Pewaukee
Joel Zamzow, 9, Portage

CANADA
Kristine Lee Horn, 8, Oak Bluff, Manitoba
Michael Kalantar, 10, Edmonton, Alberta
Shawn Mooney, 12, Plenty, Sask.
Leslie J. Stilling, 12, Saskatoon, Saskatchewan

OVERSEAS
Mallay Charters, 11, Nacka, Sweden
Philip Saunders, 10, Basingstoke, England

MARTIN MANSIONS



All kinds of birdhouses could spell home to purple martins. But are they fussy! These large swallows send scouts north each spring to look over the best bird real estate. They might choose a Bavarian castle or a wheel with gourds. But whatever they pick, it's got to be roomy so that they and all their friends and relations can move in. And that's why people like them around—lots of purple martins to eat lots of insect pests.

—Candida Palmer

Photos by Jack Dermid

Millie the Mallard

by Sterling Dimmitt

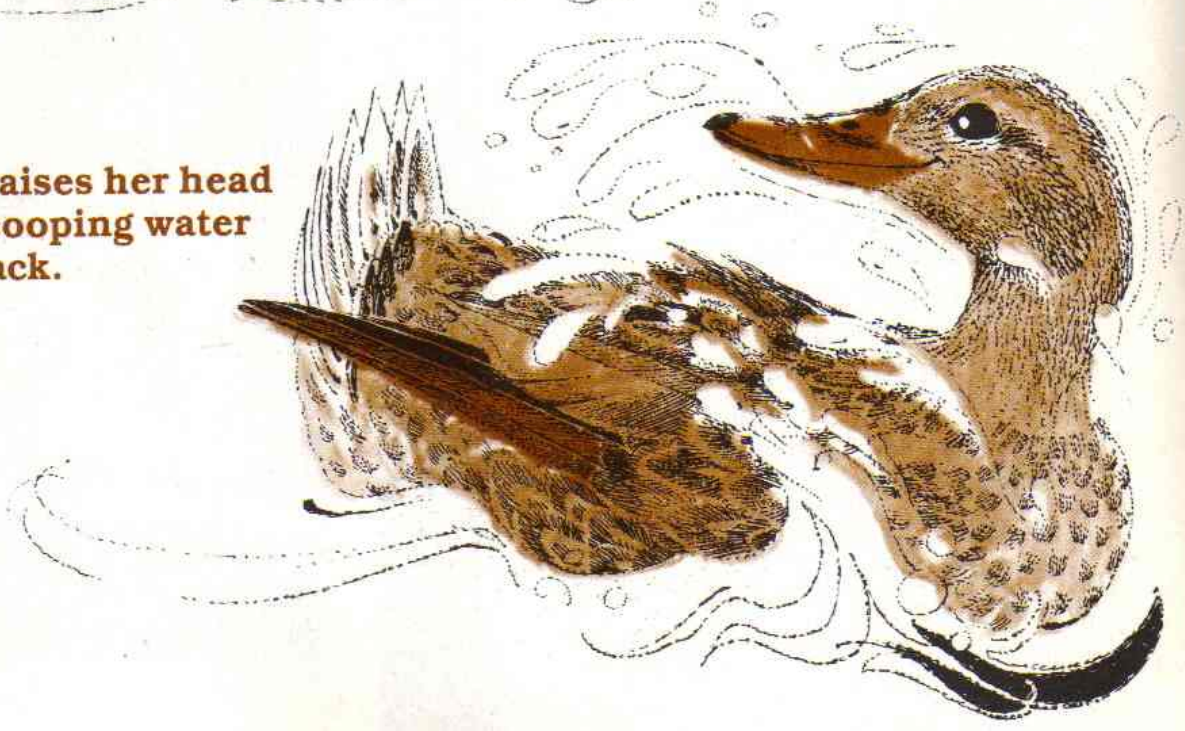
Millie is a wild mallard duck. Ducks get dirty just as we do. Would you like to see how Millie takes a bath?

Millie has to take very good care of her feathers — her life depends on it. She couldn't fly very well with dirty, broken feathers. It would be hard for her to get away from foxes or other predators. Millie also needs clean feathers so she can fluff them up to keep herself warm. Otherwise she might freeze.

You may wonder why Millie has to take a bath, since she sits in water most of the time. Swimming doesn't get rid of all the dirt, fleas or lice on her feathers — or her own old waterproofing oil. She has to bathe and *preen* to keep her feathers clean and in good shape.

Please turn the page

First Millie ducks her head and shoulders under the water.

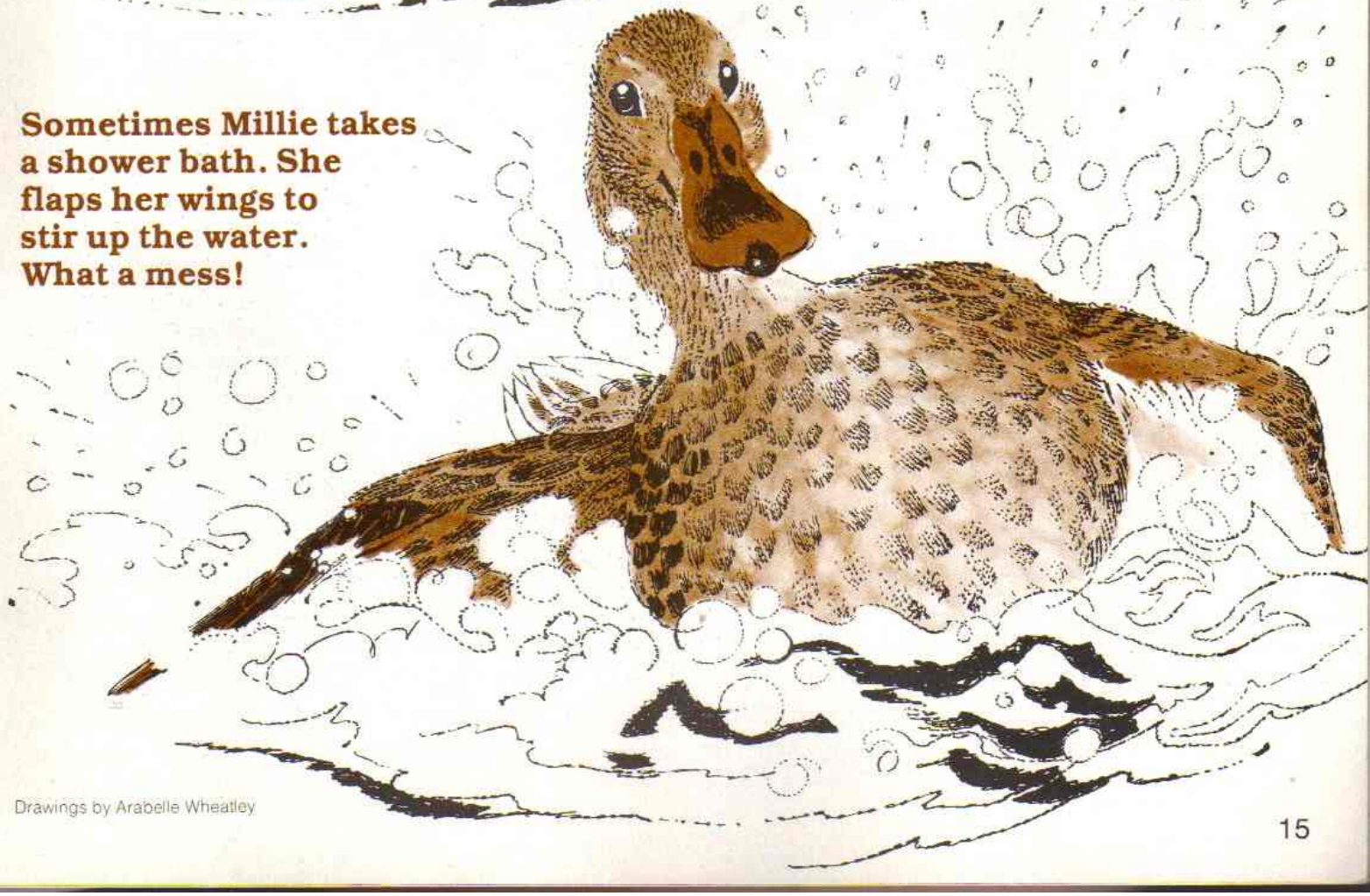


Then she raises her head quickly, scooping water over her back.

Takes a Bath

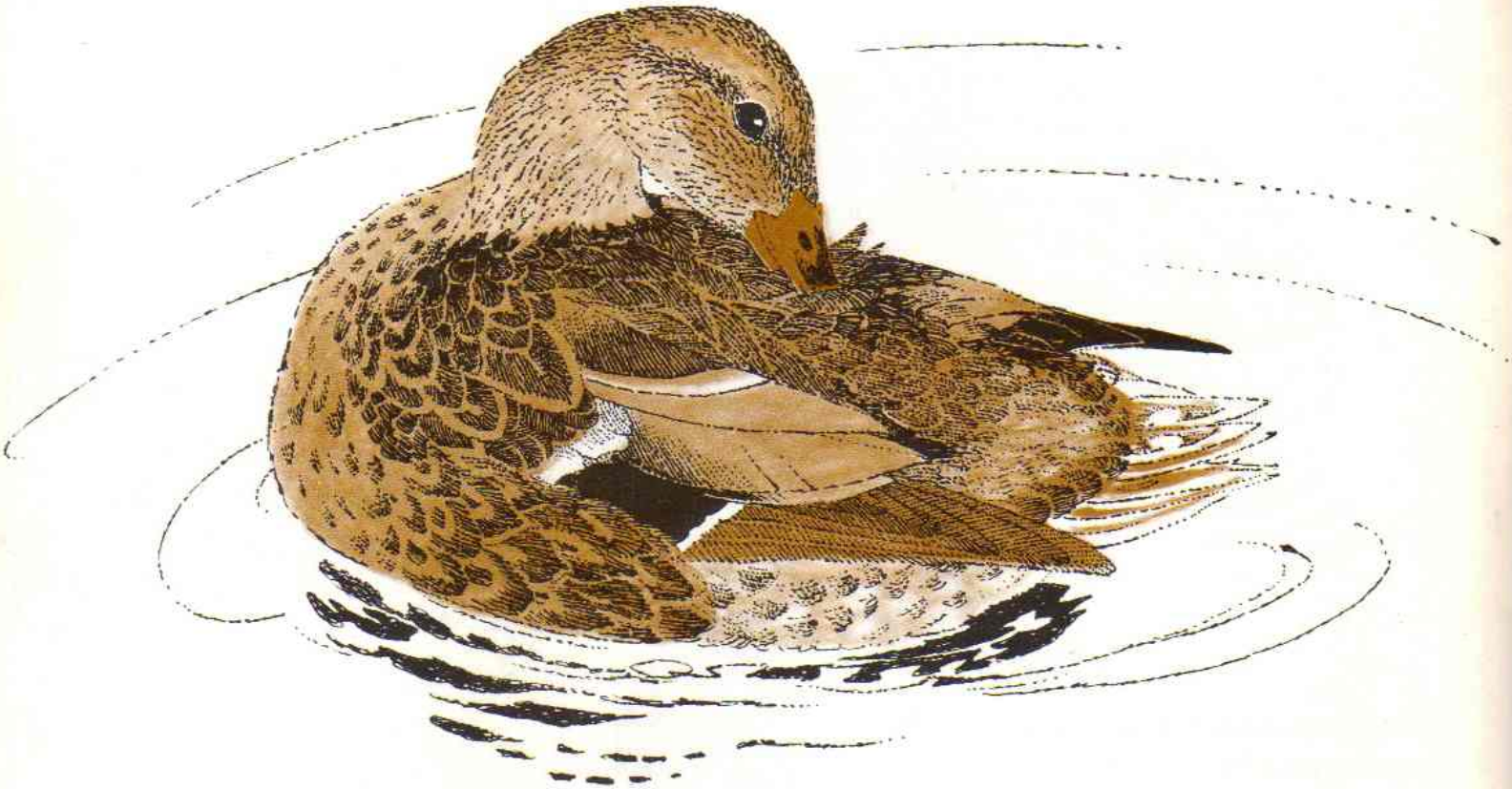
Next she rubs her head
along her wing.

Sometimes Millie takes
a shower bath. She
flaps her wings to
stir up the water.
What a mess!



Drawings by Arabelle Wheatley

To get her feathers extra clean, Millie nibbles them as she pulls them through her bill.



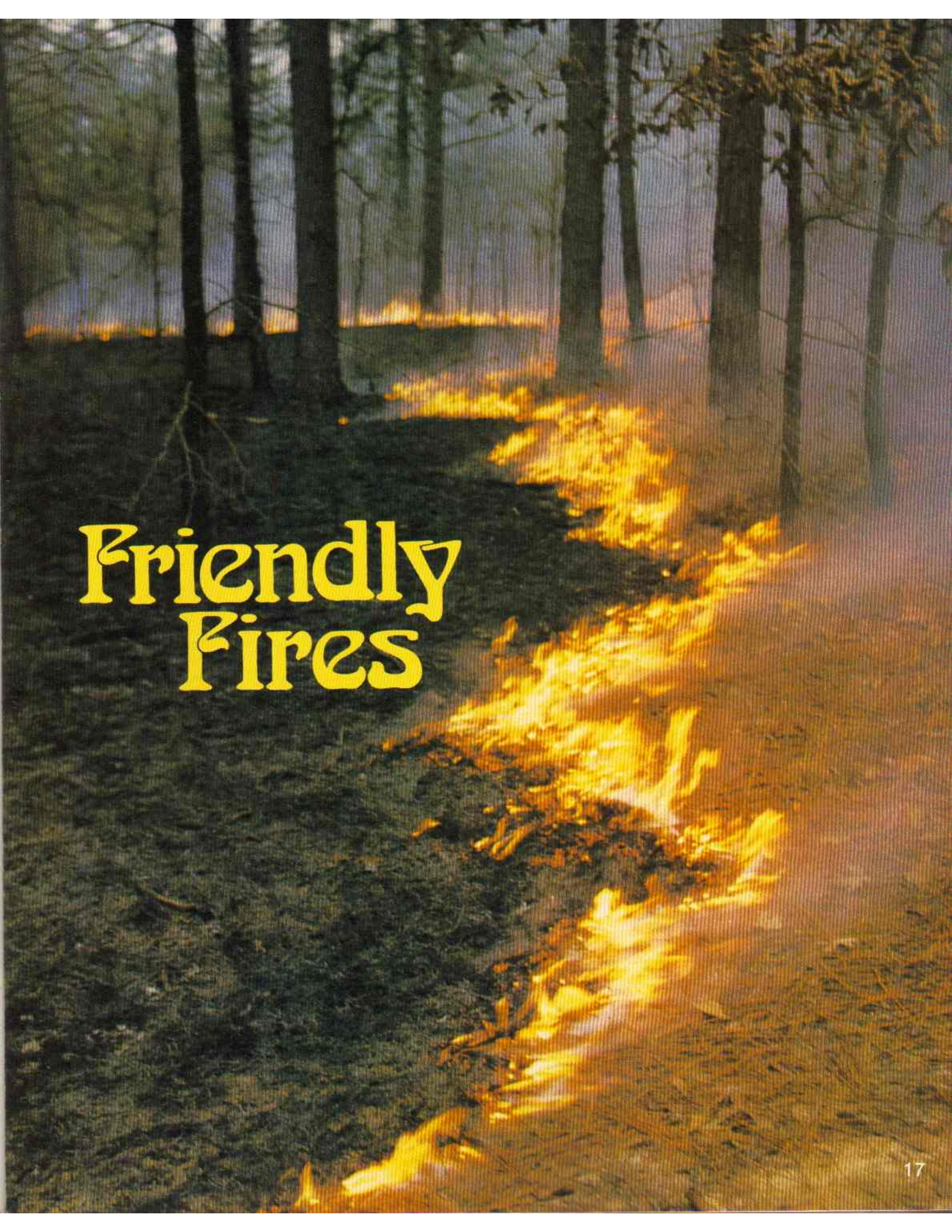
Millie needs to get her outer feathers wet evenly, but she doesn't want to get soaked to the skin. That would make her very cold and wet.

Now that she has loosened up the dirt and old oil by bathing, Millie can start to preen her feathers with her bill. She wipes off the dirt and old waterproofing oil on her feathers and smooths the slits in them. Sometimes she pulls out feathers that are broken. She nibbles her feathers to get them extra clean and to get rid of lice and fleas. Next she spreads on her feathers new oil from the preen gland near her tail. Millie is through with her preening when she has finished arranging her feathers.

Most water birds bathe and preen as Millie does. Other birds may also "dry clean" themselves in the dust. Sometimes birds help each other preen, especially those spots that are hard to reach.

Look for the different ways birds bathe and preen. You can train yourself to watch for details as do scientists who study birds. While you're studying the birds, watch for some of the funny things they do. You might even see a duckling do a "somersault" right in front of you!

The End


Friendly
Fires

Photos by Gwen Kirtley-Perkins (17, 18); Jack Dermid (19-1, 2); Lynn L. Rogers (19-3)

Deer and other animals can get out of the way of a fire that burns slowly along the ground.

by Louise C. Barden

Down a narrow trail in the dead grass came a baby cotton rat. His mother squeaked shrilly behind him and pushed him along. Somehow she had sensed it — a fire was nearing her nest.

The rats crossed a bare strip of dirt that would keep the fire from getting to them. The mother rat left her baby in a patch of green weeds. She rushed to bring two more babies to safety.

The rat family hid together in the clump of weeds until the fire had passed. Without having to think about it, they had known how to protect themselves from the fire.

Every few years, slow burning *surface fires* had burned through this grassy woodland in southern Georgia. Some of the fires had been started by lightning, some by people. Whatever the cause, surface fires were a part of this longleaf pine woods.

No one knew what had started this fire. Some people watched it carefully from the edges, where they were sure it wouldn't spread. Scientists from the Tall Timbers Research Station near Tallahassee, Florida, were there. They wanted to see what the animals would do and what would happen to plants during and after the fire.

Luckily for the rats and the other forest animals, the fire had started in early spring. The birds had not built their nests yet. The ground was damp from the spring rains. The young plants were full of sap. The fire did

not get hot enough to spread through the whole forest.

A light breeze pushed this surface fire slowly along the forest floor. Cottontail rabbits, whitetail deer and other animals were able to get out of its way. Snakes crawled deep into holes until the fire had passed.

Good things happen after some fires: (1) cones drop seeds; (2) trees live on; (3) animals find food.

Hawks and shrikes gathered in the air ahead of the smoke. They caught grasshoppers and other insects that flew up to escape the heat of the fire.

The fire burned until evening. Then the air grew damp and cooler. Dew gathered on the dead grass and pine needles. The fire went out.

The animals began to return to the burned part of the forest. For a while the fire had made them flee their homes. Now it would help them.

Please turn the page

Rats and deer nibbled at the cooling ashes. The animals didn't know that eating the ashes would give them minerals that would help them grow.

The forest floor seemed black and dead. The fire had burned the tough dead grasses and the woody shrubs that grew under the longleaf pines.

The fire had scorched the tall pines, but the trees were still alive. Their thick corky bark had protected them.

The small longleaf pine seedlings under the big trees were bare. The fire had burned their needles. Before the fire, the needles had been dying from brown-spot needle blight. The heat from the fire had destroyed the diseased needles.

The roots of the seedlings had survived the surface fire. Soon the seedlings would sprout healthy new needles. In the warm sunshine the young trees would grow one to three feet (30-90 cm) taller each year. The fire had slowed down the growth of the plants that had shaded them.

That was not the only way the fire had helped these little seedlings. Before the fire the forest floor had been covered with a layer of dead needles, branches and grasses. If seeds had fallen from the pine trees they would have gotten lost in that layer. They wouldn't have been able to reach the soil underneath to sprout.

Now the ground was bare. When the seeds fell from the pines in the fall, they would land on the soil. The seeds would be able to sprout and send roots out into the soil. New pine trees would be able to grow.

Experts test how fast a fire burns between

Other seeds and plants sprouted after the fire. Huckleberry and dewberry shrubs sent up new sprouts from their roots. Tender wild pea plants came up. Patches of new grass began to grow.

The seeds and new plants provided food for the cotton rats, quail, wild turkeys, rabbits and deer. Some of the forest animals ate seeds they found on the ground. Others ate the shoots of the newly sprouted plants.

The new plants had taken in minerals from the ashes of the fire. Their

Photo by Kent & Donna Dannen

stakes. They carry water to keep it under control.

shoots were better food for the animals than the older plants were.

A few weeks after the fire the forest was green again.

Scientists now know that surface fires like this one are part of life in many forests in the United States.

In the West, surface fires help sequoia seedlings sprout. The fires also keep shrubs and other kinds of trees from growing that might crowd out the sequoias. In the same way, surface fires help lodgepole and ponderosa pines.

Jack pines that grow in the northern United States have cones glued shut by their *resin (REZ-un)*. They may stay closed for many years until the heat of a fire melts the resin. Then the cones open, and the seeds drop to the ground. After the fire they sprout into new trees.

These forests and others need fires to grow, reproduce and stay healthy. Some wildfires caused by people or lightning can harm the forest if they are not controlled. But some fires can be part of nature's plan for the forests.

Tree and wildlife experts have tried to copy nature's way of helping the different kinds of plants and animals in the forest. To do this they set "friendly" fires that keep the brush under the trees from getting too thick. We know now that this helps the seedlings sprout and helps keep the plants and animals in the forest healthier. It also helps keep bigger fires from starting.

But when they set these fires, or let natural ones burn, the experts have to be *very careful.* They have to make sure that the wind is not too strong and that the forest is not too dry. They also need lots of equipment, trained helpers and a place with bare ground or a supply of water to help them stop the fire. They don't want the fire to get so big that it would be dangerous to the trees, the animals or the people who might be nearby.

The End

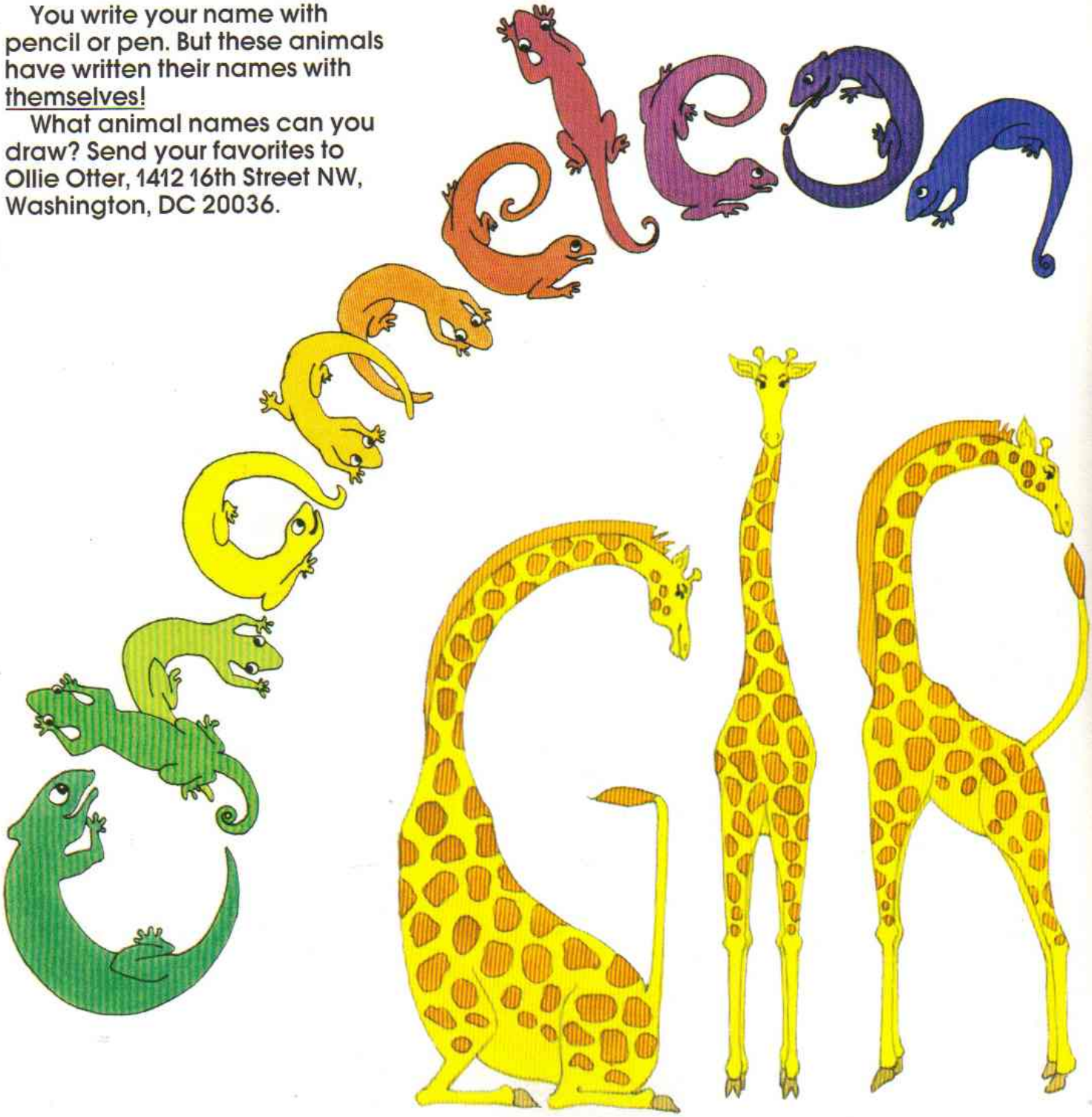
Rangers: Make sure that *you* don't start a fire in the woods. Smoldering campfires and matches that are still hot can cause very "unfriendly" fires that do terrible damage to the forests and the animals that live there. If you see a fire in the forest, get help right away!

R.R.

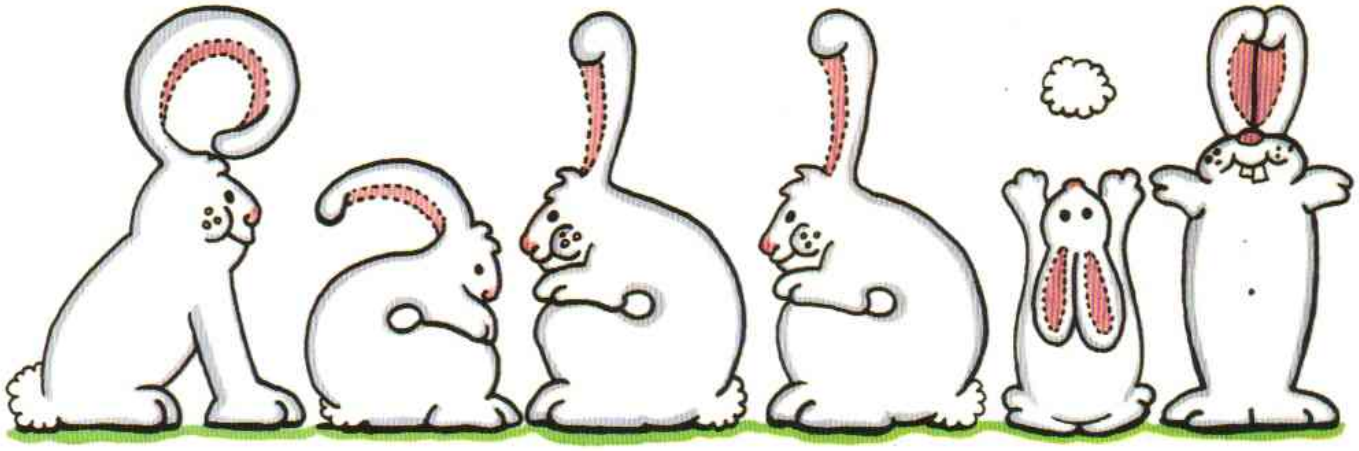
OLLIE OTTER'S

You write your name with pencil or pen. But these animals have written their names with themselves!

What animal names can you draw? Send your favorites to Ollie Otter, 1412 16th Street NW, Washington, DC 20036.



FUN PAGES



JELLY
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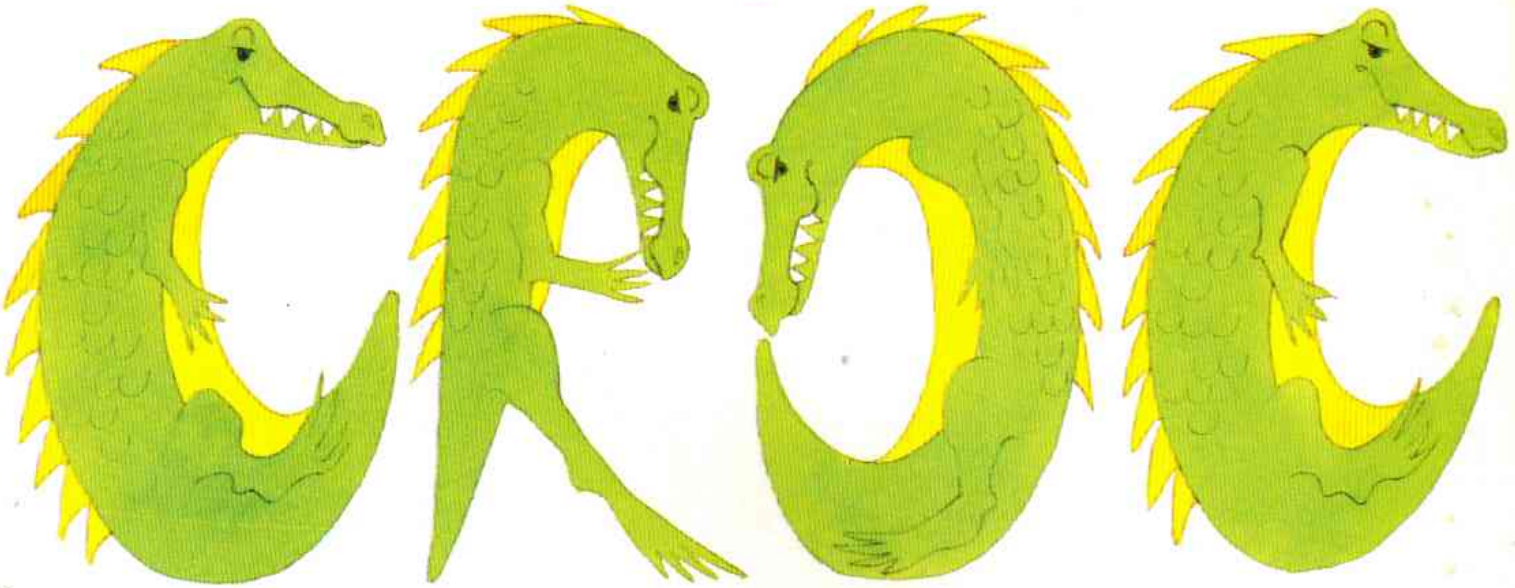
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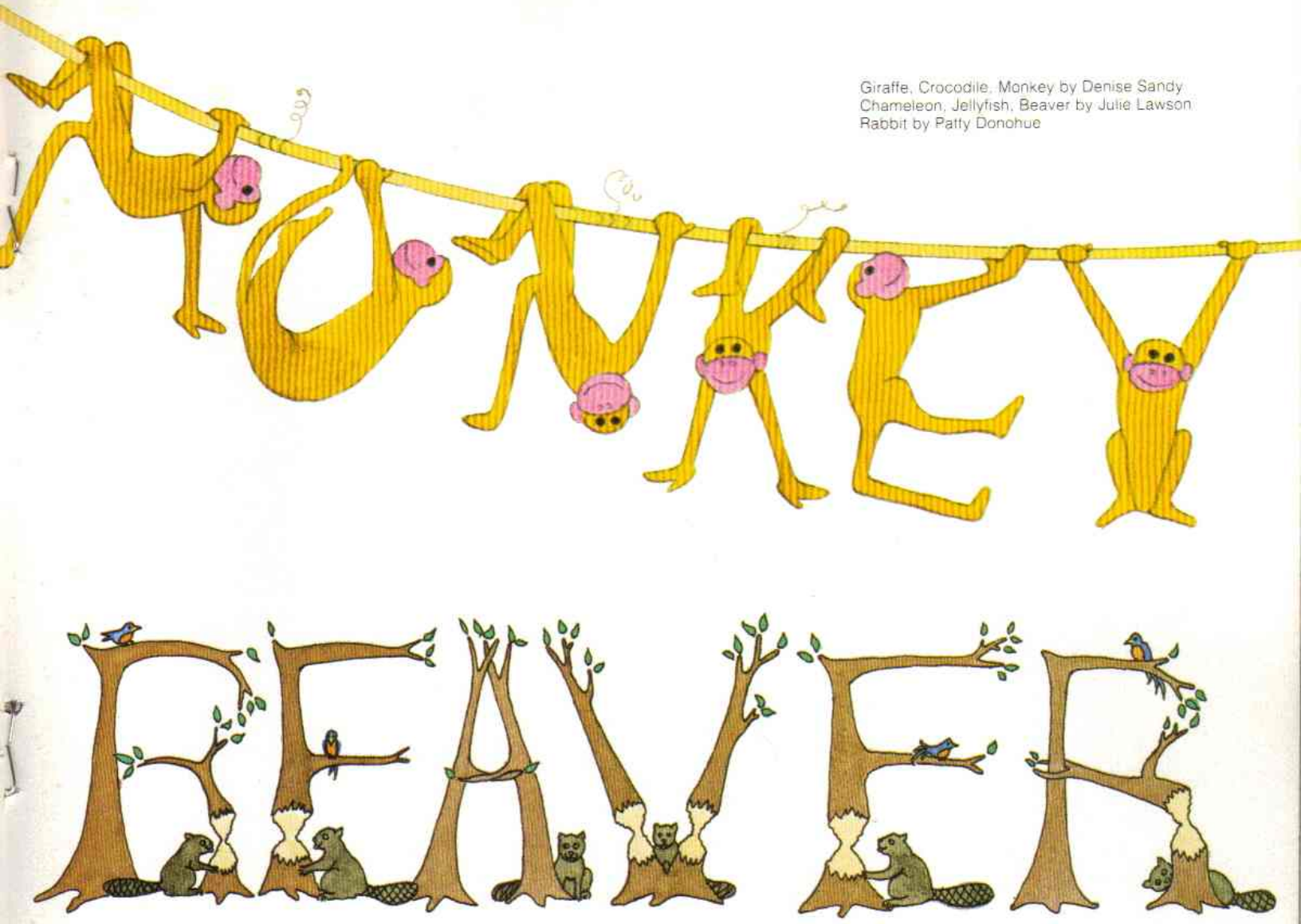
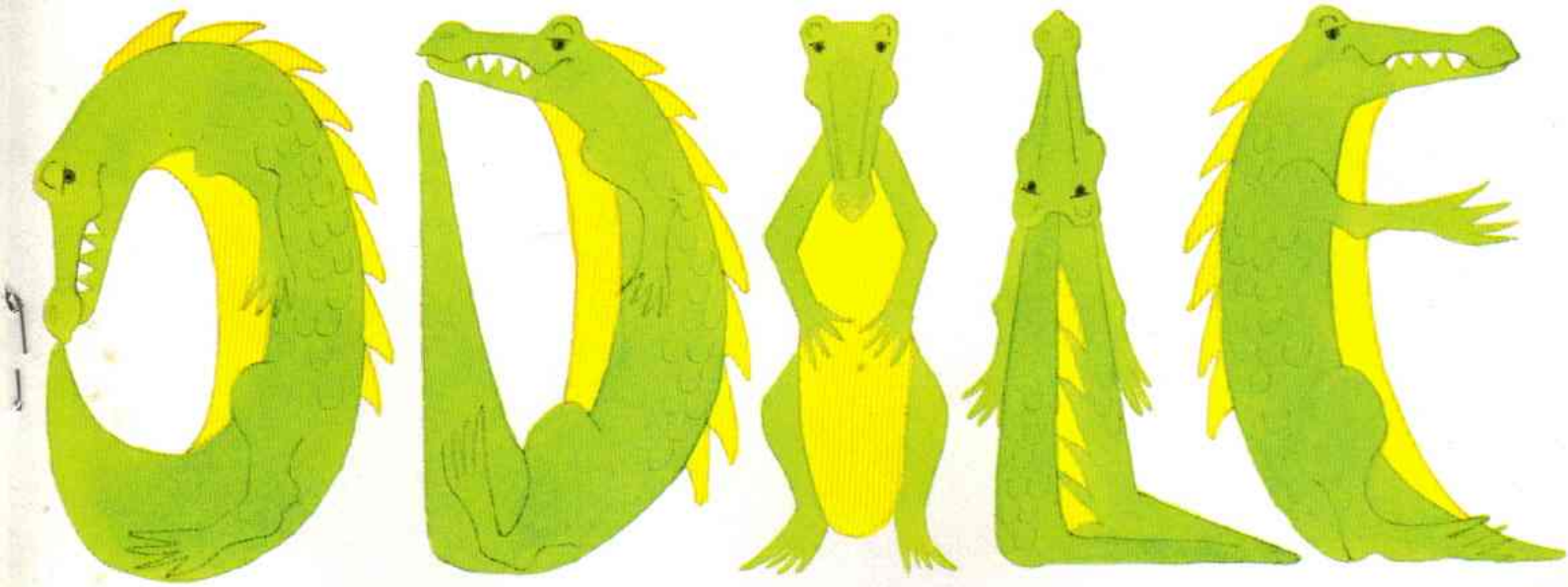
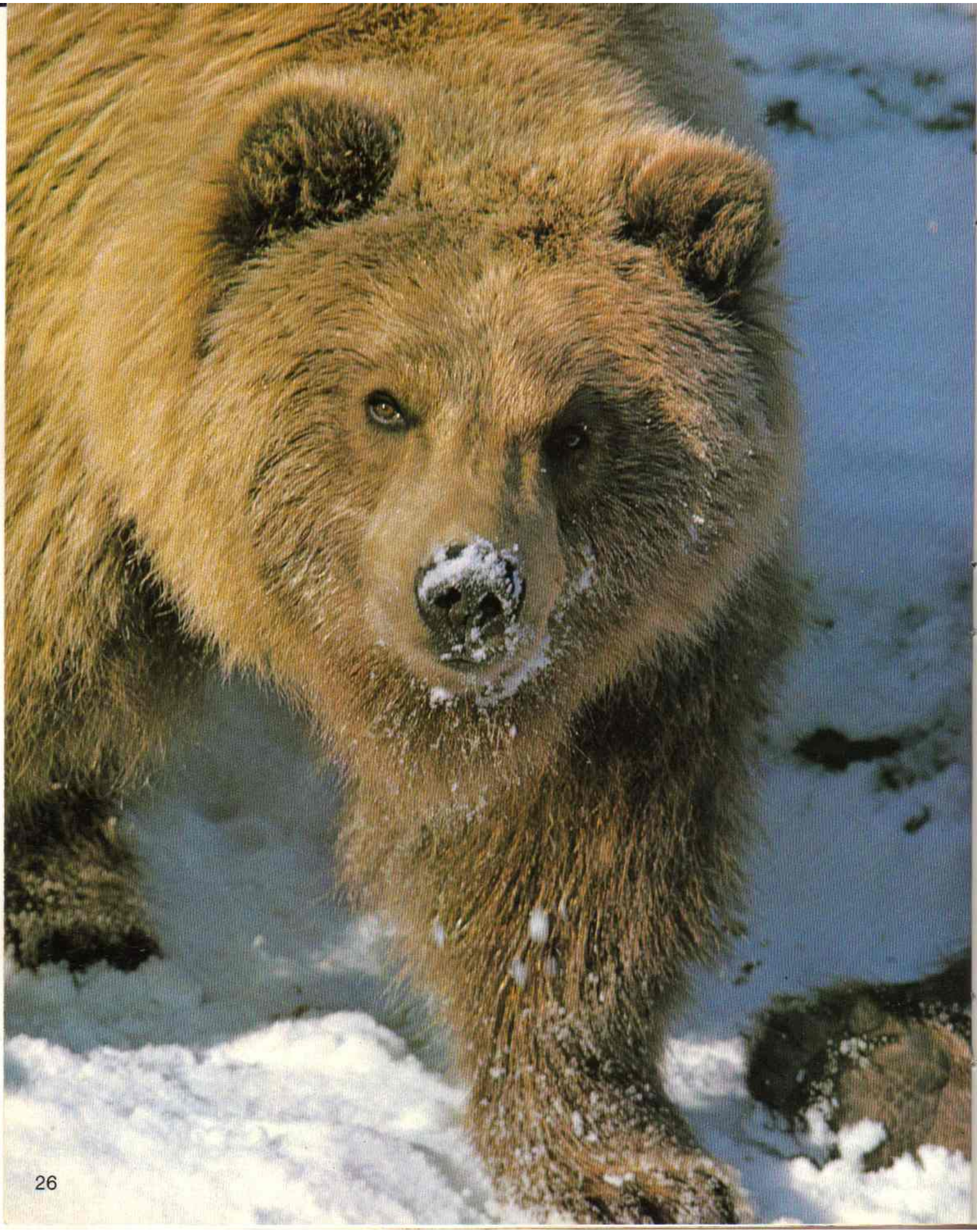


Giraffe, Crocodile, Monkey by Denise Sandy
Chameleon, Jellyfish, Beaver by Julie Lawson
Rabbit by Patty Donohue





by Robert H. Redding

Kootznahoo growled. He raised his huge head and sniffed the clear Alaskan air. The scent was still there, strong in the wind. Wolves! And wolves were his enemies. Trouble was on the way.

Lowering his head again, Kootznahoo (KOOTS-nuh-who) went back to feeding. Like all big brown bears, he enjoyed a special feast. His meal was a mule deer that had died during the long winter. This was May, and he hadn't eaten a real meal since October, just before he had gone to his den for his winter's sleep. He was very hungry!

Kootznahoo seldom tried to catch live deer. He was not a slowpoke, but deer could easily outrun him. However, when he wanted meat he could help himself to deer or other dead animals he found.

A howl cut the silence, and Kootznahoo growled again. The wolf pack was coming fast. The great bear stood up on his platter-sized hind feet. He searched the air with his keen nose, and his ears picked up a sound — the hushed stirring of soft footed animals on the run. He had only a few minutes left.

Hissing, Kootznahoo dropped to all four feet with scarcely a thump. In spite of his 700 pounds (315 kg) of bone, muscle and hide, he could be light on his feet. Showing his mouthful of shining teeth, he yawned nervously, shook himself and returned to his feast. Off and on, he jerked his head up to see what he could see, which wasn't much. He was nearsighted and had to rely on his nose and ears. The wolves drew nearer.

Suddenly they were there — four gray-furred adults, seeking food for cubs at the den. The wolves had smelled the dead deer from far away. Now they wanted to eat some. They looked Kootznahoo over with their amber eyes, while circling him and his meal.

The wolves were nervous, and as they circled they barked and yipped. They darted at the deer, snatching mouthfuls before speeding away again. The bear roared and swatted at them with his

Please turn the page

KOOTZNAHOO

Photos by Stephen J. Krasemann, Tom McHugh-Wildlife Unlimited Photo Researchers

justinman@archive.org

Kootznahoo, the brown bear, found a dead deer.

powerful front paws. The wolves had fought brown bears before. They knew they had to keep clear of Kootznahoo's dangerous curved claws. If the bear hit one of the wolves, it would go sailing.

The wolves' aim was to drive the bear away from the deer. But they couldn't do it in a tooth-to-claw attack. Their best bet was to wear the big fellow out. Tire him. Keep after him until he gave up.

So they tried. In and out they charged. Sometimes they escaped with a mouthful of reddish bear fur. But other times they got a slap from the bear's paws.

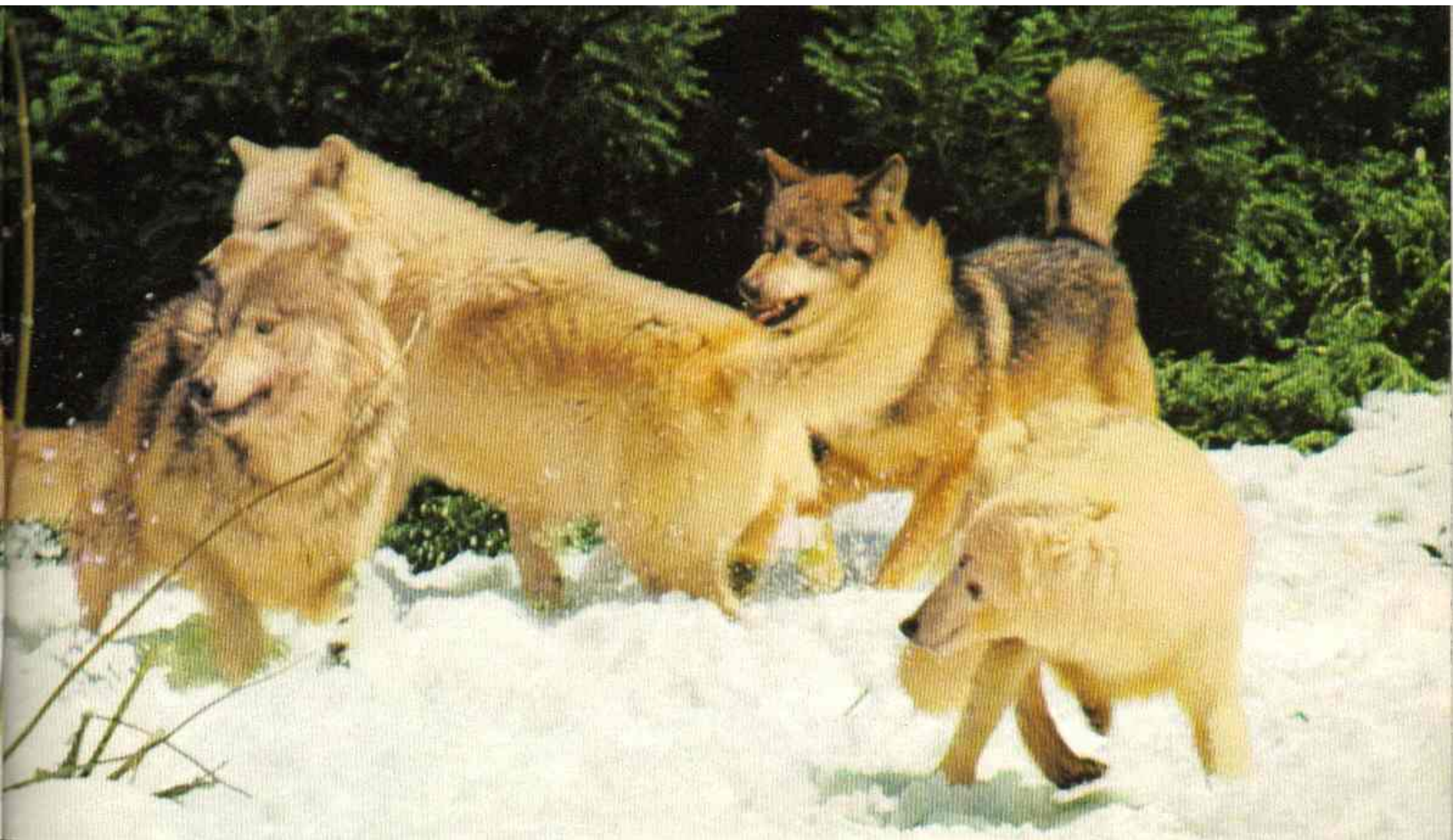
The air filled with howls, growls, shrieks, snarls, hisses and barks. The pack of wolves tried hard. They used all the tricks they knew, and the fight continued for hours. But Kootznahoo couldn't be moved.

Once the bear was lured away by a wolf playing cripple. Seeing a chance to get rid of one pack member for good, Kootznahoo charged after the limping wolf. As soon as he left his meal, the other wolves were on it, gulping rapidly. The bear charged back. Swinging his front paws in wide sweeps, he drove the tricksters off. The wolves ran off, and Kootznahoo stood over his prize.

After this the pack gave up. The four hungry wolves circled slowly, watching the bear for a few minutes. Then they suddenly ran away. If they couldn't have deer, well, there were other feasts in the forest!

Kootznahoo was bleeding from several wounds. But he forgot about them and went back to his feast. After an hour he calmly walked off, leaving the rest of the deer for whatever hungry animal might want to eat next.

Photo by Stouffer Productions/Animals Animals



So did a pack of wolves, and they wanted some.

He strolled to a stream and drank. Then he started on the most common food of the season, roots. He dug these with his long claws and chewed loudly, drooling at the mouth. If a grub or two went down also, so much the better.

Kootznahoo liked roots. He also ate grass and wild berries when they were in season. More than anything else, he lived on plants. He was almost like a 700-pound cow in a bearskin!

Once in a while, as had just happened, Kootznahoo would find a dead deer or some other animal. He once found a mountain sheep that had died in an avalanche (AV-uh-lanch).

At other times he also dug for live ground squirrels. There were many of them in his home range in southeast Alaska. Ground squirrels were a favorite meal, but it took work to catch even one. Once he spent hours digging into a squirrel's den, only to see it escape.

As the big brown bear wandered about his range he faced no real dangers. Even wolves treated him with respect most of the time. He was too big, too tough, too fierce. So for the most part he was let alone. He walked slowly, grumbling sometimes, ignoring one and all, minding his own business.

Long after he'd left the deer, he heard the wolves again. They were back at the site of their defeat, feeding on the meat he had left.

Kootznahoo growled but did not go after the pack. He had found a patch of fresh green grass and plucked at it with his lips. The big bear was content.

The End

Rangers: The name *Kootznahoo* is a Tlingit Indian word that means "bear fort" or "place of the bear." *R.R.*

These are close-up photos of the skins of living animals that have the same name!

Guess What?

Clues

1. They live in the oceans.
2. Their scientific name, *echinoderms*, comes from two Greek words meaning hedgehog and skin.
3. They turn their stomachs inside out to eat shellfish.
4. Tiny sucking "feet" help them move.
5. Most of them have five "arms."
6. If they lose an "arm," another one grows in its place.

Have you guessed their name? Turn to page 39 for the answer.

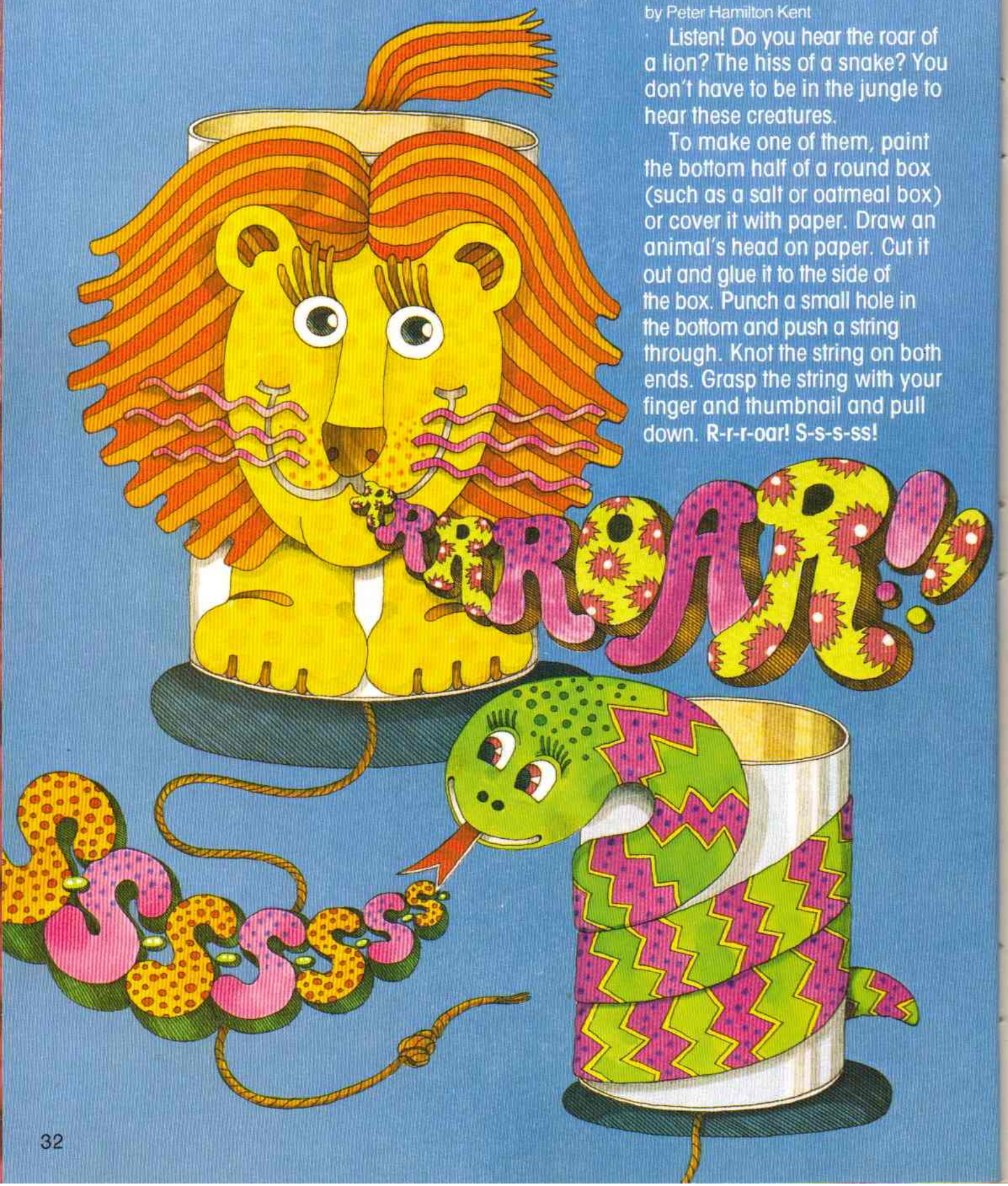
Photos by Jack Drafahl

Drawing by Gorden Kibbee

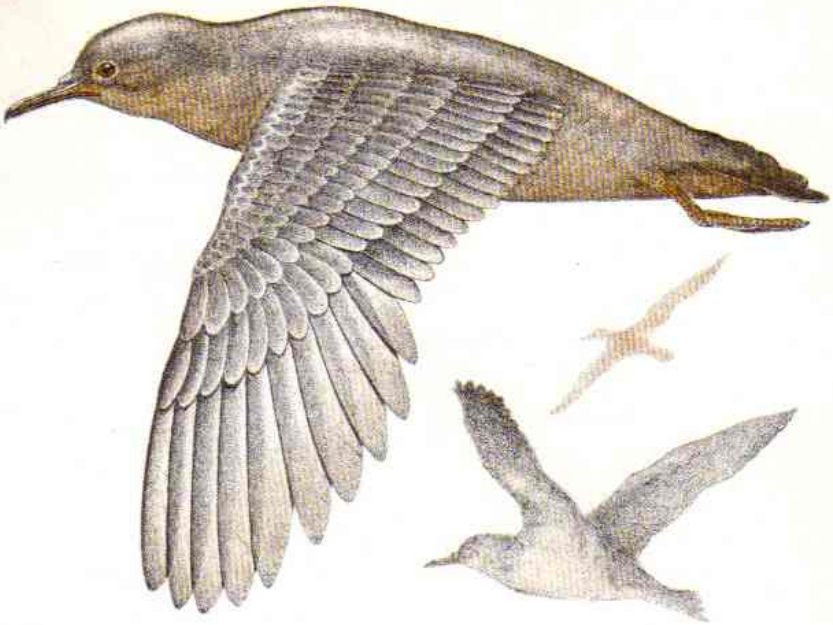
by Peter Hamilton Kent

Listen! Do you hear the roar of a lion? The hiss of a snake? You don't have to be in the jungle to hear these creatures.

To make one of them, paint the bottom half of a round box (such as a salt or oatmeal box) or cover it with paper. Draw an animal's head on paper. Cut it out and glue it to the side of the box. Punch a small hole in the bottom and push a string through. Knot the string on both ends. Grasp the string with your finger and thumbnail and pull down. **R-r-r-oar! S-s-s-ss!**



Tuttle and Kate



by Joyce Wolf

TUTTLE, the tuatara (too-uh-TAR-uh), and Kate, the sooty shearwater, are roommates. Kate dug the burrow they share and Tuttle does the housekeeping. During the day Tuttle naps at home while Kate goes out fishing. At night Kate sleeps while Tuttle goes hunting. Just who are these well-matched partners?

Tuttle the tuatara is a large lizard-like reptile. He is clumsy and bigheaded and about as long as your arm. "Tuatara" means "spiny" in the Maori (MAU-ree) language of New Zealand. And you can see from his spiny crest how he got his name.

The great-great-great-and-many-more-greats-grandparents of Tuttle might have stalked through your backyard 150 million years ago. They would have looked just like Tuttle, but your backyard would have looked very different. In those prehistoric times it may have been a great swampy forest. Reptiles ruled the earth then, and some of them were tuataras.

Please turn the page

Drawings by Peter Zallinger

Today most of those reptiles are extinct, and you won't find tuataras in your backyard. Tuttle and the other tuataras can be found only on a few wild islands around New Zealand. Tuataras are living fossils, leftovers from the days when the earth was much younger.

Tuttle stays in or near his burrow dozing through the day. He wakes up now and then only to do a little housework. His housework is more pleasure than work. He simply snaps up any unlucky spiders, beetles or crickets who wander into his burrow. Tuttle might chew a cricket for several minutes. He does everything very slowly. But he has plenty of time, since tuataras may live as long as one hundred years.

WHILE Tuttle is snoozing and snacking at home, Kate the sooty shearwater is flying far out over the Pacific Ocean. Kate is a large, sooty gray seabird. She is clumsy on land but strong and graceful in the air.

Kate leaves her beach burrow at dawn every day, along with the rest of the large colony of shearwaters. In the quiet dawn a terrible racket begins. Hundreds of the big birds flap and squawk as they take off in flight. Once she's launched Kate can soar and glide for hours. She skims over the waves looking for a fish or squid to snatch up for a quick meal.

Kate was born in another burrow on the beach last year. When she was very young her parents took good care of her. They fed her so much that she grew fat as a butterball.

One day Kate's parents disappeared. They and all the adult sooty shearwaters flew off to begin their long winter migration. Kate was so fat that she couldn't fit through the exit of the burrow, so she stayed put and waited. As the days went by Kate used up her baby fat, and feathers replaced her baby down.

KATE finally came out into the sunlight, looking like an adult. She was like all the other young shearwaters who were entering the world for the first time. She knew how to fly, how to catch fish and where to go during the winter.

Very soon Kate and the other young shearwaters started a long, dangerous flight. It would take them in a great loop around the Pacific, far north of the Equator where it is summer during New Zealand's winter.

When Kate returned to the beach in the spring (which is November in New Zealand), she dug herself a burrow. The rest of the shearwater colony did the same. The droppings and loose soil the birds leave around their burrows attract lots of spiders and insects. And where there are spiders and insects you'll find tuataras.

SLOW, easygoing Tuttle could easily have built his own burrow. But he found that moving into a ready-made home with a plentiful supply of food was just the thing. Its rightful owner, Kate the sooty shearwater, wouldn't mind. And besides, she'd never be home during the day anyway.

Kate and Tuttle, like other sooty shearwaters and tuataras, share a home now. When fall comes Kate will be off again on her long flight. Tuttle will spend the winter safe in the burrow, mostly sound asleep. But when spring comes again, Tuttle will wake up just in time to see Kate come flying in calling *Ku-ah, ku-ah, ku-ah, krek!* She will land with a great thump, home again. *The End*

WHO·O·O KNOWS?

A lot of you have been asking me questions about turtles. So now I've got a question for you: Why did the turtle cross the road? Read on and find out the answer to that one, as well as a lot more about turtles.

Dear Wise Old Owl:

I've been wondering. Do all turtles have shells?

Kevin Denton, Yakima, WA

Yes, they do. So there's never any question whether an animal is a turtle or not.

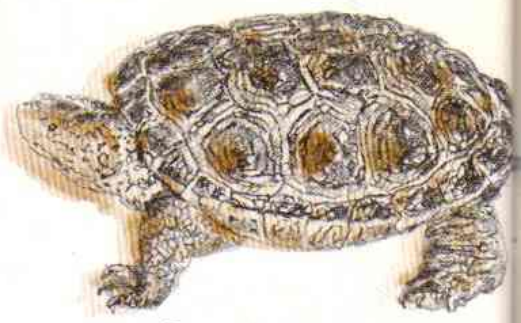
In all turtles, the upper shell is called the *carapace (CARE-uh-pace)* and the lower shell is the *plastron (PLAST-run)*. The carapace is made out of the turtle's backbone and ribs which have grown together.

The shell is very much a part of a turtle's body. A turtle could never crawl out of its shell.

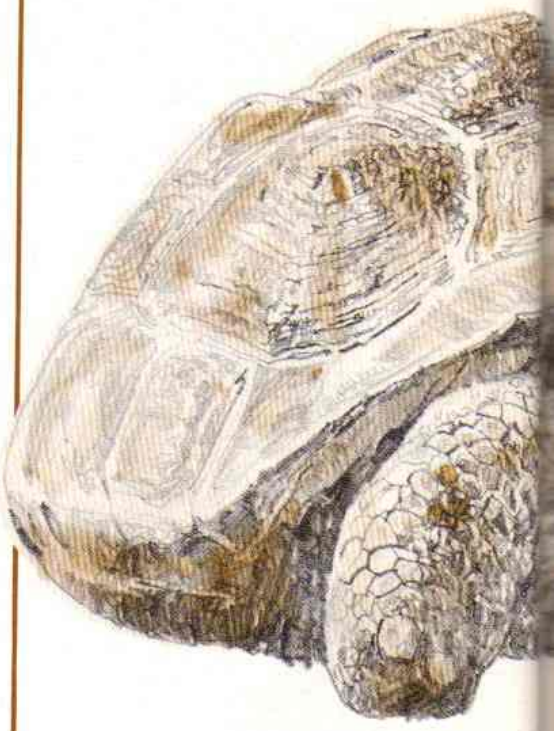
In most turtles the shell is made of two hard layers — bones on the inside and a horny material like your fingernails on the outside. Leatherback and softshell turtles have a soft outer layer, so their shells feel leathery.

Carapace

Plastron



Diamondback terrapin



My father and I recently had a big discussion. Is there a difference between a turtle and a tortoise?

Daniel Zimberlin
New Bedford, MA

In the United States, the word *turtle* usually refers to animals that live in the water. Both freshwater and ocean creatures are called turtles. The word *tortoise* is used for turtles that live on the land,

Galápagos tortoise

such as the Galápagos tortoises and gopher tortoises. An exception to this rule is the box turtle. The box turtle lives on land its whole life, but it isn't called a tortoise.

Another word that might confuse you is *terrapin (TER-uh-pin)*. Terrapin comes from an Indian word meaning "a little turtle." Diamondback terrapins live in salt marshes along the eastern seacoast.

Does a turtle's shell grow?

Vicki Monical
Cimarron, KS

Yes, it does — turtles don't shed their shells the way all insects do. Turtle shells grow very slowly. Then again, most turtles aren't in much of a hurry to do anything.

How can you tell how old a turtle is?

Jill Bessler
Pullman, MI

It's not always possible, Jill. Certain turtles, such as wood turtles, have rings on the scales of their shells. Each year they grow a new ring. By counting the rings, you can tell how old the turtle is. But as the animal gets older, the rings wear down, so it's hard to know exactly how old the animal is.

Turtles can live a long time. One male Marion's tortoise from the Seychelles Islands in the Pacific Ocean lived in captivity for 152 years. That's the record for the oldest animal in the world.

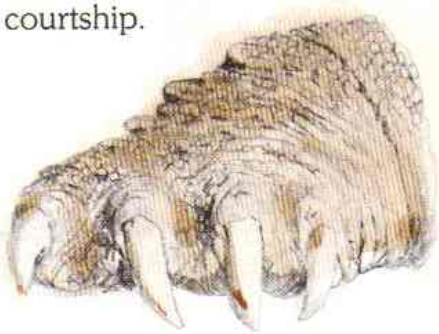
Growth rings

Could you tell me how to tell if a turtle is a boy or a girl?

Erin Earl, Erieville, NY

In many kinds of turtles the lower shell of the male is more indented, or *concave*, than the female's. This lets him balance on the female when they mate.

Sometimes male turtles have longer, thicker tails than the females, or have different colored markings. And some male turtles have long claws on their front feet. They use these long claws to tickle the cheeks of the female during courtship.



What happens to turtles in the winter?

Astrid Kidder
St. Paul, MN

Most turtles hibernate when the weather gets cold. Usually they bury themselves in mud or sand at the bottom of a pond. Box turtles are different. They dig into loose soil on land.

All winter long hibernating turtles seem dead. When spring comes they wake up and lead their normal lives.

I have one turtle friend who stays up all winter.

Please turn the page

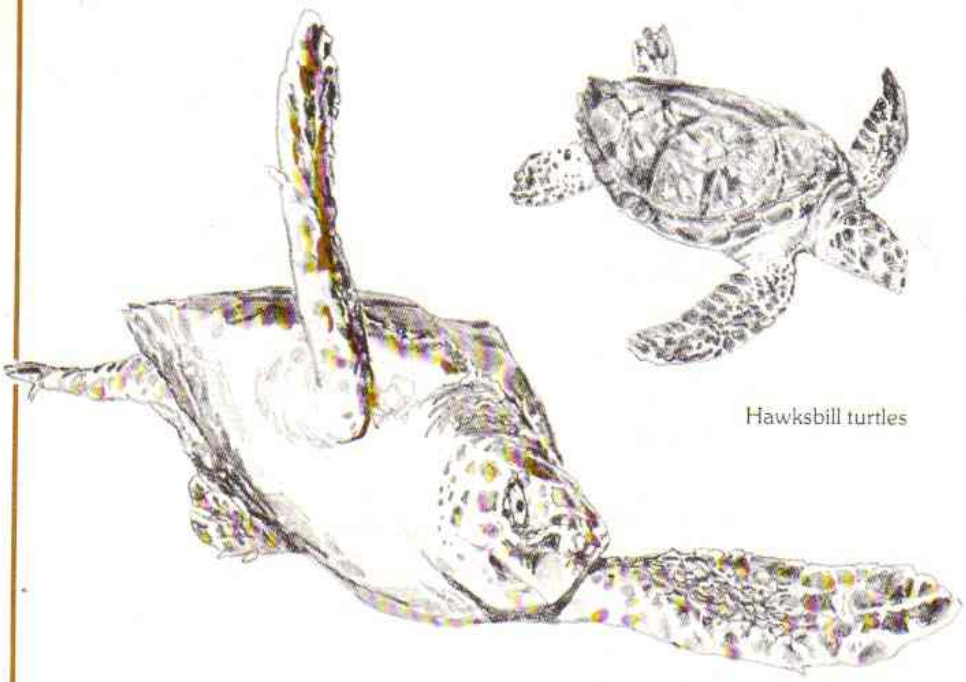
He's just very careful to wear a hat, mittens and a bright red turtleneck sweater!

I have a pair of tortoiseshell glasses. Does that mean they came from a giant tortoise?

Ann Mulligan, Age 13
Lake Forest, IL

The tortoiseshell that combs and glasses are made of used to come from the hawksbill sea turtles. But today these animals are so rare that they are in danger of dying out. It is against the law to sell tortoiseshell made from hawksbills.

Fortunately, people can make a brown and gold plastic that looks almost as beautiful as real tortoiseshell. I'll bet your glasses are really plastic. (I think tortoiseshell is very pretty. But, for myself, I prefer the elegant look of my rimless spectacles.)



Hawksbill turtles

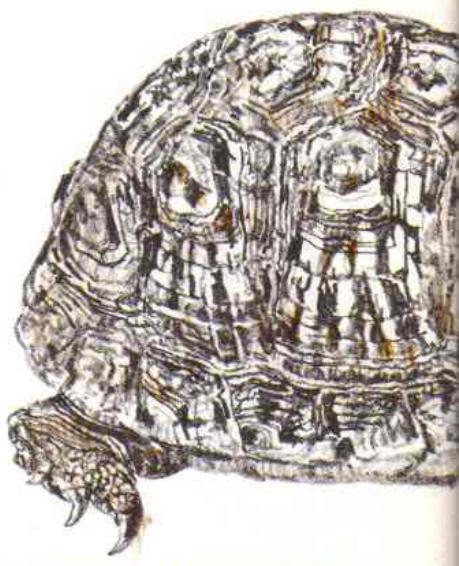
Why are turtles so slow?

Rusty Ferrar, Belleair, FL

Turtles' shells make it hard for them to walk quickly. But since the shells protect them from many predators, they really don't have to go any faster.

Turtles may move slowly on land, but in the water they can be quite swift. Pond turtles escape their enemies by quickly slipping into the water and swimming away. Sea turtles, such as the leatherbacks, have been timed at speeds of 22 miles (35 km) per hour in the water. They could win a race with a human swimmer any day!

Drawings by Ted Lewin



Could you tell me what turtles eat? Eric Rademacher
Great Falls, MT

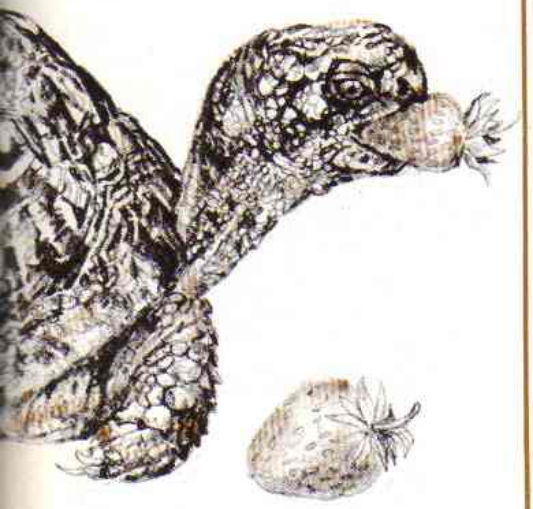
Different kinds of turtles eat different kinds of food. Freshwater turtles eat fish, frogs, snails, crayfish, carrion (dead animals) and plants. Sea turtles eat seaweed and small animals attached to the plants. Tortoises eat all sorts of things — mushrooms, grass, fruit, carrion and insects.

Box turtles are fond of raspberries and strawberries. In fact, sometimes they eat so much that they can't fit all the way back into their shells. Now that's really eating yourself out of house and home!

I have a turtle that I found in the woods. Do they make good pets? Brian Malley
Silver Spring, MD

Keeping a pet turtle is a lot harder than you might think, Brian. Turtles need lots of

Box turtle



space, and those that live in water have to have their tanks cleaned regularly. If you find a turtle it's kindest to keep it for just a few days. Then let it go exactly where you found it.

Snapping turtle

Do turtles have teeth?

Stephen Beltz
Lodi, CA

No, they don't. Instead their jaws have sharp, bony rims that bite quite well. In fact, the jaws of a big snapping turtle may be strong enough to bite off your finger.

Are there any turtles that are endangered?

Frances Long
Tulsa, OK

I'm sorry to say that most of the sea turtles are in trouble. Many have been hunted for meat and oil, and their eggs have been collected for food. Often they get caught in fishing nets and drown. (Even though they live in water, turtles still need to breathe air.) There are now strict laws to protect them, so let's hope they can be saved.

There are at least ten kinds of turtles in North America that are in danger of dying out. For most of these, the problem is loss of their homes. Many marshes and ponds are drained or filled in for buildings or farms.

Other turtles are in trouble because of water pollution. And some are in danger because thoughtless people shoot them for target practice.

There is some good news, though. The bog turtle of the Northeast was thought to be very rare. But recently scientists have discovered that it is much more common than they thought. It's just very hard to find!

How do turtles have their babies?

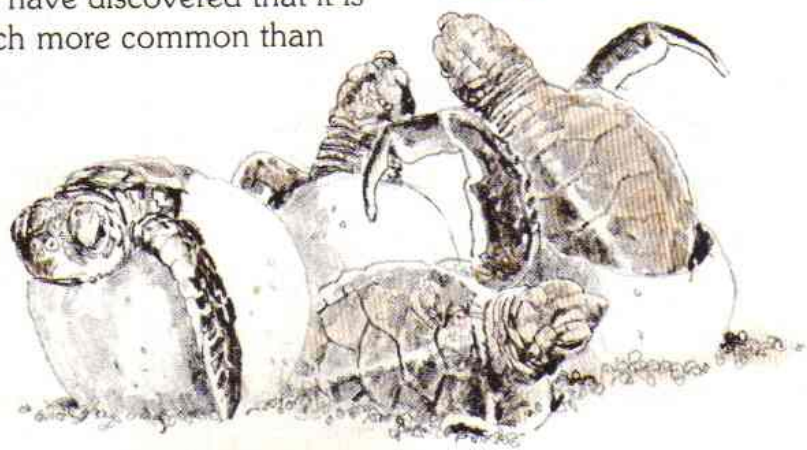
Donald Mercer, Falmouth
Nova Scotia, Canada

Turtles lay leathery-shelled eggs, just as most other reptiles do. Usually the female digs a hole with her back legs and lays her eggs in it. Then she covers the eggs with soil, sand or leaves. When the warm sun hatches the eggs, the babies dig themselves out and crawl away.

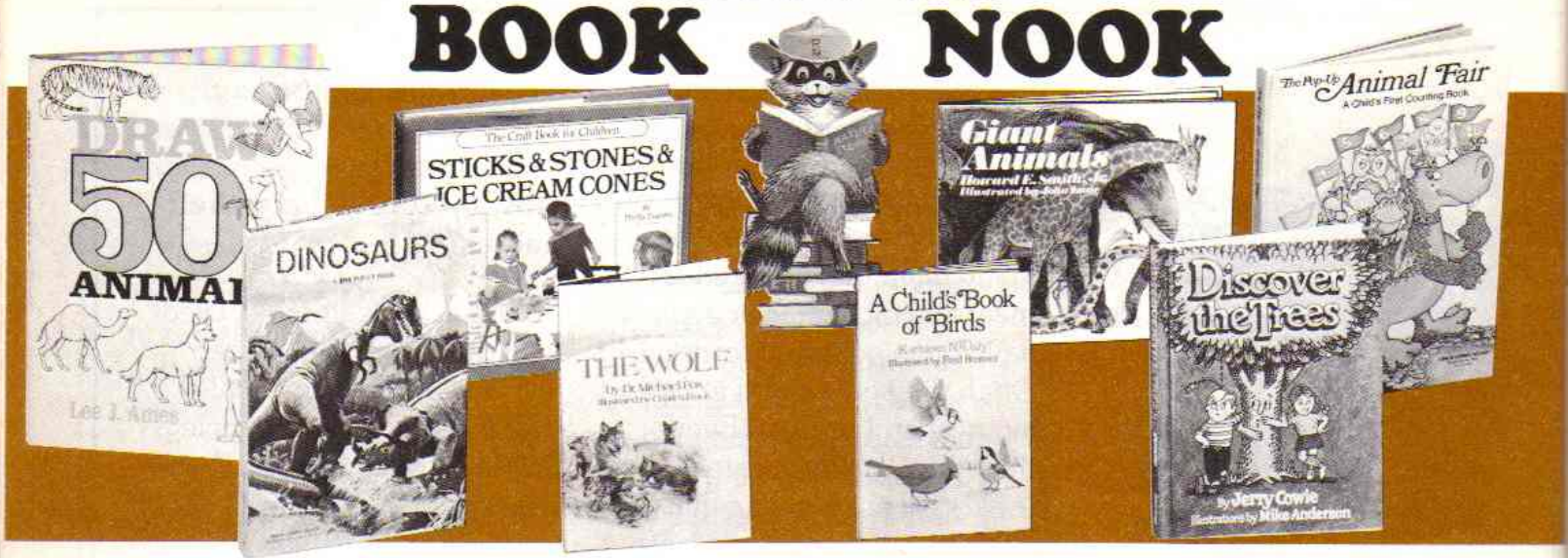
In spring and early summer, diamondback terrapins travel from the salt marshes to special places where the soil is just right for laying eggs. To get there they often have to cross roads. In New Jersey, people have helped the terrapins by putting up signs that tell drivers "Watch out for the turtles."

(If you're asked, "Why did the turtle cross the road?" you'll know the answer: She went to lay her eggs!) *W.O.O.*

Answer to *Guess What?*, page 30: Sea star (starfish).



HOLLOW OAK BOOK NOOK



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Adventure #123 A Tangle of Trouble

by Robert A. Brownridge

"Spring is just about my most favorite time," said Ollie Otter, stretching out on his back.

"That's because spring rains make nice slippery mud slides for you," said Ranger Rick, laughing.

"That's right," said Ollie. "There sure are some great ones here at Rushing River!"

"Hey, Ollie," said Rick, "look who's coming. It's Cubby Bear and his cousin Barbara."

"Hi," called Cubby. "Boy, isn't this a great day — clear, peaceful and quiet!"

"Peaceful, maybe," said Barbara, "but not so quiet. What's that noise?"

"Geese!" exclaimed Rick. "Canada geese. Look!"

Just at that moment a huge flock of beautiful birds flew over the animals' heads. They were flying north to their summer nesting grounds.

"What a sight!" shouted Barbara.

"They look strong and healthy, don't they?" said Cubby.

"They need to be strong. They have a long way to go," said Rick. "Some Canada geese may travel almost 3000 miles from Mexico up into Northern Canada. And in the West they fly all the way up to Alaska. Sometimes they fly above rivers, using them as landmarks. That's why you see these geese here."

"Oh, look over there," called Ollie.

The others looked where he was pointing. A lone goose was struggling to catch up to the flock, but it was having great trouble flying. Suddenly the goose fell into the river!

Rick rushed into the water. He put a paw around the bird's neck and pulled it to shore.

"Look how thin she is," cried Cubby. "She sure doesn't look strong like those other birds."

The poor goose flapped her wings

Please turn the page

Ranger Rick and his friends

weakly and made strange noises.

"She's trying to tell us something," said Barbara.

"She can't tell us *anything*," said Rick angrily. "Her beak is all wrapped up with a fishing line. She can't open it to talk *or* eat. No wonder she's so thin!" Quickly Rick pulled off the line.

"How in the world did *that* happen?" asked Cubby.

"Thank you," gasped the goose. "I got tangled up in that stuff while feeding on the shore of the lake where we spent the winter. The more I shook my head, the more I got tangled. I couldn't eat so I got weaker and weaker. I thought it was all over when I fell."

"That's enough talking for now," said Rick gently. "You'd better get something to eat and get your strength back. There's a cornfield across the river. You'll find plenty of last year's leftover corn."

The goose started swimming. She was halfway across when Rick and the others saw that the wind and current were too strong. The poor tired bird was drifting quickly downstream.

"She'll never make it!" gasped Ollie. "I'll get her!" In a flash he hit the water.

"That goose is drifting farther and farther away," said Barbara.

"She sure is," yelled Cubby, "but where in the world is Ollie? He hasn't come up for air since he dove in."

"Ollie should be near the goose by now," said Rick, becoming alarmed. "I wonder if he hit his head on a rock when he dove in."

"I'll see what's happened," said Barbara. *Splash!* She jumped into the water.

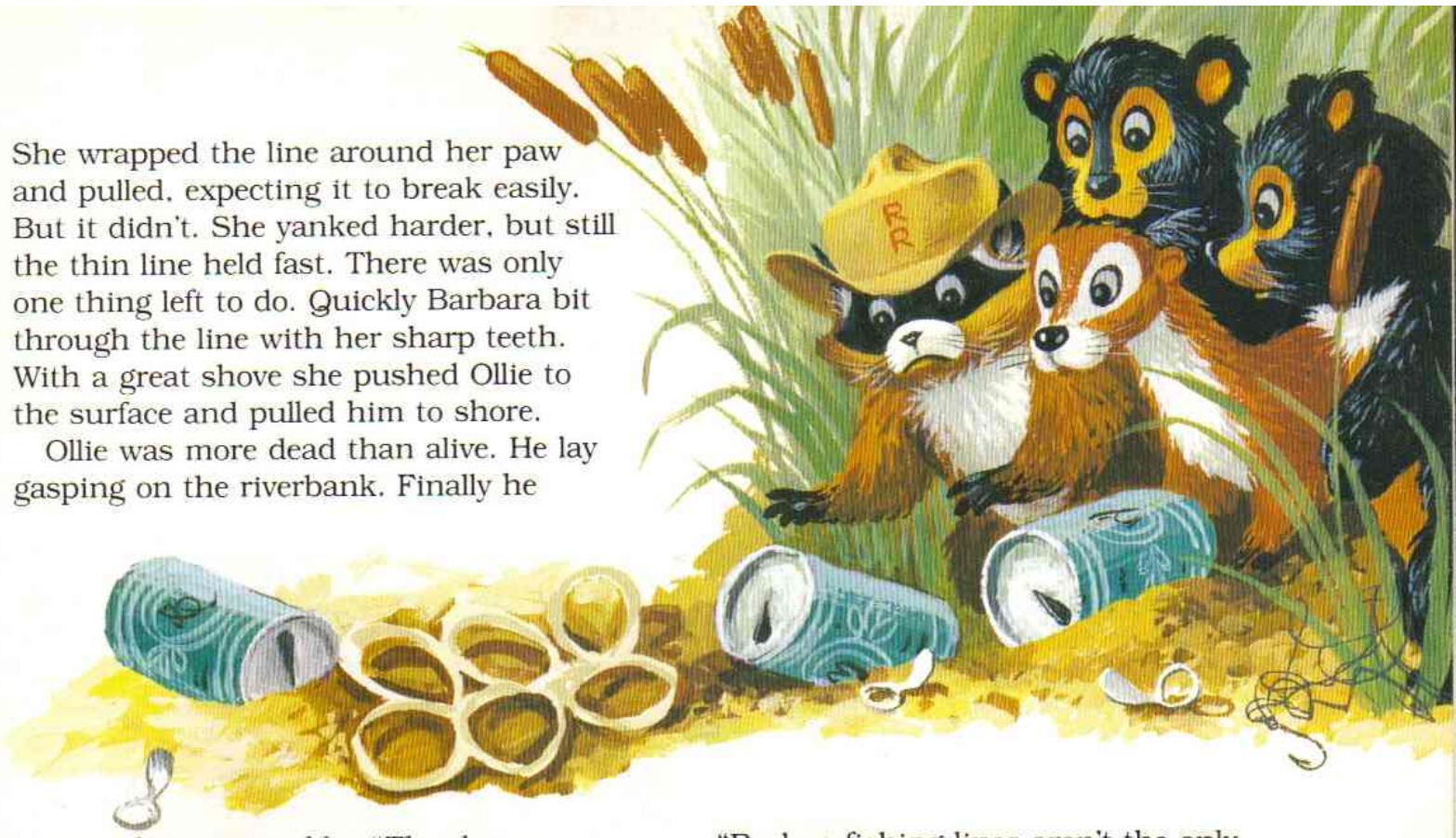
She swam powerfully out to the middle of Rushing River, looking underwater as she went. Suddenly she stopped. Her head popped up.

"I've found him!" she shouted. "He's stuck under the water!"

Sure enough, Ollie was all tangled up in a long piece of fishing line that had snagged under a big rock. He was struggling to free himself. Barbara could see that he was almost out of breath. There was no time to lose.

Down dove the powerful young bear.

Drawings by Lorin Thompson



She wrapped the line around her paw and pulled, expecting it to break easily. But it didn't. She yanked harder, but still the thin line held fast. There was only one thing left to do. Quickly Barbara bit through the line with her sharp teeth. With a great shove she pushed Ollie to the surface and pulled him to shore.

Ollie was more dead than alive. He lay gasping on the riverbank. Finally he managed to say weakly. "Thank you, Barbara. I thought I was gone. I couldn't free myself, no matter how hard I pulled."

"That kind of line is hard to break," said Rick. "Ranger Tom was telling me about it the other day. It's called *monofilament (mon-o-FILL-uh-ment)* fishing line. Tom said that many places where people fish are full of it."

"But where does it come from?" asked Cubby.

"Sometimes when people's fishing lines get tangled, they just throw the lines away," answered Rick. "Ranger Tom says fishermen should bunch up the tangled line and take it home with them."

"Well, what about people whose hooks get caught way out in the middle of a stream?" asked Barbara. "Is there a way of getting that line back?"

"There sure is, Barbara," said Rick. "The fisherman should yank it until it breaks. The line will most likely break near the hook. Then it's easy to pull the rest of the line in."

"Broken fishing lines aren't the only problem," said Ollie. "Lots of people toss away plastic six-pack holders. They can mess up us animals too."

"Sometimes fish swallow the flip-tops from cans," added Rick. "The tops can cut the fish, and may kill them."

"Fishing is great fun, but I wish people would be more careful where they throw their trash," said Cubby. "Animals like our Canada goose friend can easily get hurt."

"The goose!" everyone shouted. "What's happened to her?"

They ran back along the river. Just around a bend there she was — high and dry in the cornfield, eating happily.

"Thank goodness!" exclaimed Barbara.

"A couple of days in that field and she'll be ready to join her friends," said Rick. "Come on, let's head for home."

"Good idea," said Cubby. "I'm hungry!"

"Hungry!" teased Barbara. "We should tie *your* mouth shut, you fat bear!"

"Things," Rick said, laughing, "are back to normal!"

The End

THE FAT

by Mariette Nowak

I like grosbeaks! Take the pine grosbeak — not only is it a beautiful bird, it also has mouth pouches like a chipmunk's. It loves to take snow baths and is so tame that you can get close enough for a good look.

Like all grosbeaks, the pine grosbeak (photo 3) has a very thick and rounded beak. This beak is ideal for cracking open the seeds it loves to eat. The word grosbeak, in fact, comes from two French words that mean "fat bill."

Pine grosbeaks have pouches at the sides of their mouths. They work like built-in grocery bags. These pouches are very handy in spring when there's a family to feed. The parents stuff their "grocery bags" with seeds and insects. Then they fly off to feed their hungry nestlings.

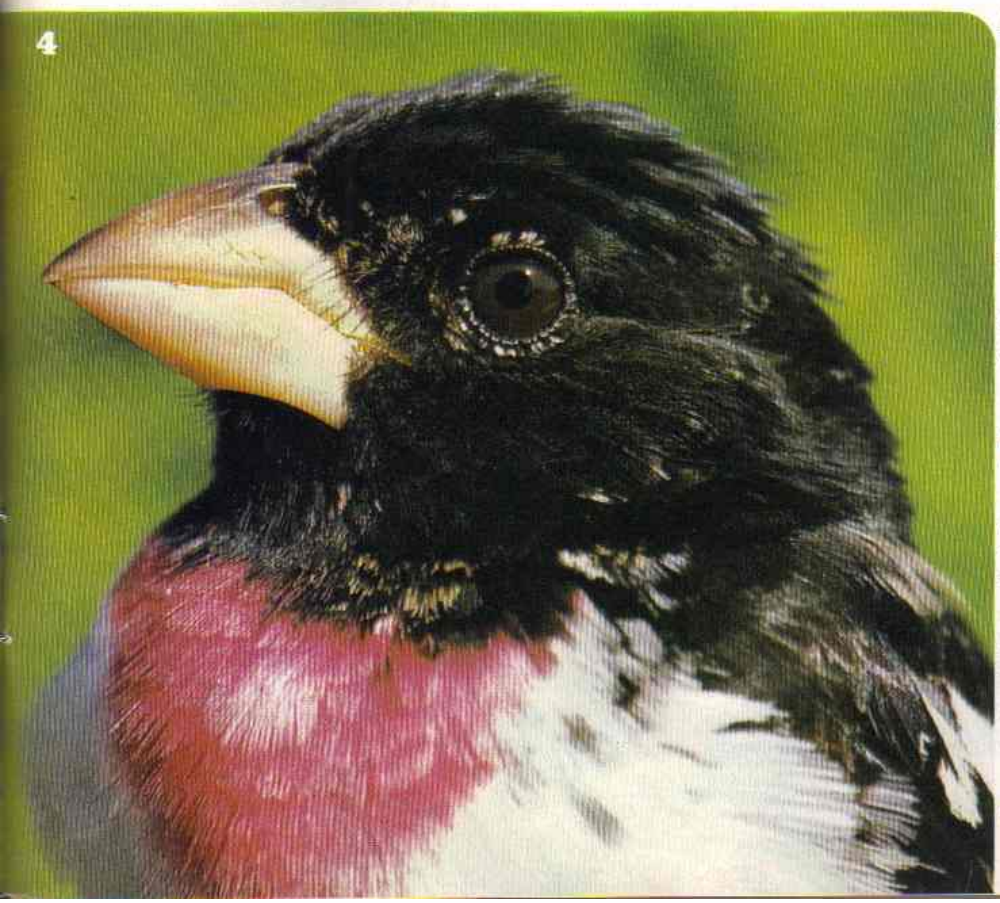
The pine grosbeaks are hardy birds. They take snow baths the way other birds bathe in water. Standing in the snow, the birds flutter their wings to toss the white spray over their feathers. And the cold doesn't seem to bother them! No wonder pine grosbeaks are found in northern spruce and fir forests the world over, from Siberia and Scandinavia to Canada and

1

3

2

BILLS ARE MY FAVORITES



4

Photos by John L. Tveten (1,4), Bruce D. Thomas (2), Edgar T. Jones Bruce Coleman, Inc.

the northern United States.

The handsome yellow and black evening grosbeak (photo 2) is also a cold-weather bird.

Naming this bird *evening* grosbeak is a mistake, by the way. When an early explorer first met this bird, it was singing at sunset. But like many birds, it is even more likely to sing early in the day. A better name would be *morning* grosbeak.

Both pine and evening grosbeaks are winter wanderers. They visit places in the northern United States when they can't find enough food farther north. But the other "fat bills" are our summertime friends.

Rose-breasted grosbeaks (4) and black-headed grosbeaks are both common birds. Rose-breasted grosbeaks raise their young in many states east of the Rocky Mountains. Black-headed grosbeaks live in the Western states. Although they look quite different, these two kinds are very much alike.

Both male and female rose-breasted grosbeaks help build the nests. Among black-headed grosbeaks, the female does the building. The male just follows her about. Mom and

Please turn the page

Father black-headed grosbeak feeds his nestlings a juicy grub.

Pop of both kinds of grosbeaks take turns sitting on the eggs to keep them warm. And both feed the young once they hatch.

Unlike many birds, the females as well as the males of these two grosbeaks can sing! They sound a lot like robins, only much prettier — like robins that have had singing lessons.

Both grosbeaks eat many harmful insects. The rose-breasted grosbeak has been nicknamed the "potato-bug bird." It eats the troublesome potato beetle whenever it can. Farmers, of course, are delighted.

The blue grosbeak (1) is the southerner among the "fat bills." It spends the summer in the warmer parts of the United States. The nest of this bird can be quite a sight, for snakeskins often decorate it. Sometimes the whole outside of the nest is covered with old snakeskins. Often, too, newspaper or dry leaves are woven into the nest.

Grosbeaks, as you can see, are very special birds. Just keep an eye out for these "fat bills." And soon you, too, will count them among your favorites.

The End

What a sight! Blue grosbeaks build their nests from twigs, leaves, scraps of paper and old snakeskins!

Photos by R. L. Kothenbeutel, Thase Daniel

A painted reed frog, no bigger than your thumb, hangs on with suckerlike toe pads. These African beauties love to bask in the sun, always ready to leap to safety.